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Exploring problematic online gaming: A qualitative approach

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ABSTRACT

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Online gaming, specifically Massively Multiplayer Online Role-Playing Games (MMORPGs), has become a very popular pastime and often is the subject of scrutiny in the literature regarding problematic play. This study aimed to develop a better understanding of problematic online gaming by recruiting and interviewing MMORPG players who potentially played at problematic levels. Ten participants (9 males, 1 female) from a Mid-Western university were screened and interviewed regarding their online gaming experiences. Consensual qualitative research was used to analyze the data. Eleven domains emerged from the data analysis: (a) antecedents to involvement in online gaming, (b) gaming activity, (c) character creation, (d) functionality, (e) perception of problematic gaming, (f) mental health issues, (g) sense of accomplishment, (h) personality characteristics, (i) positive effects of playing, (j) negative effects of playing, and (k) time loss. These findings illustrate the common experiences of players who play at potentially problematic levels. The findings are also compared to previous literature regarding the components of addiction to aid in better defining problematic gaming. The implications for practice and future research are discussed.

CHAPTER I INTRODUCTION

Video games come in many genres including role-playing games, action, shooter, action-adventure, adventure, construction and management simulation, life simulation, strategy, vehicle simulation, sports, music, puzzle, and party (Kelly, 2004). Video games can be played across various platforms (e.g., home consoles, PC, arcades, portable devices). The platform of a game refers to the device that operates the game. For example, home consoles are standalone hardware devices such as PlayStation 4, Xbox One, and Nintendo Wii U that connect to a television. PC games are games played on personal computers. Arcade games are games housed within a cabinet dedicated to a single game. These platforms are often found in places, such as malls, that have arcades and require people to pay each time they play. Finally, games can be played on portable devices such as tablets or phones by installing the game app. Games on all platforms except arcade have trended toward more multiplayer options via the Internet, thus creating online gaming.

The growth and popularity of video games has brought awareness to the emerging issue of problematic gaming. Other terms commonly used for problematic gaming include gaming addiction, Internet Gaming Disorder, and pathological gaming. All these terms refer to the idea that video game playing can be unhealthy and perhaps

problematic. However, some video game advocates believe society has responded to video games damningly because they are a relatively new phenomenon and are not as culturally immersed in the United States like other pastimes such as traditional sports, although electronic sports have grown in popularity. A common question presented in the defense of video games is why games are viewed as a waste of time but a game such as football is not (Yee, 2014). Although societal expectations largely influence what behavior is categorized as norm violations or disordered, there are also valid reasons as to why video game playing, particularly online gaming, pose more risk of problematic play than traditional sports. First, video games are more accessible. For example, students can play video games during a lecture without drawing much attention or a person can play at 3:00 a.m. in a pitch-dark room. If a student passed a football around in lecture, the activity will likely be quite noticeable. In addition, avenues to play a sport after dark are often limited. Second, because video games are easily accessible, people tend to spend more hours playing video games. For example, professional gamers have reported practicing video games a minimum of 50 hours a week and often play for far longer (H. Jacobs, 2015). Comparatively, college student-athletes reported practicing sports at least 30 hours a week, with some athletes reporting practicing more than 40 hours a week (P. Jacobs, 2015). Non-professional gamers may play online games, on average, 25 hours a week (Billieux et al., 2013). Third, because players can easily access video games and tend to spend more hours on them, they may risk limiting their social network and social interactions to mostly online. Fourth, video game playing is a sedentary activity that facilitates physical deconditioning the longer they are played while traditional sports require physical conditioning (Lyons, Tate, Ward, & Wang, 2012). This difference can

have health effects over time (King & Delfabbro, 2009; Smyth, 2007). Fifth, operant conditioning is very prevalent in online games (Yee, 2014). For example, players are rapidly rewarded early in online games such as gaining levels quickly to shape player behavior. Rewards are gradually offered less frequently as the game progresses to facilitate hours of repetitive play. Players also received fixed rewards at the conclusion of quests and other in-game activities that can drive further play. Finally, there is evidence that screen time in general, including gaming, may have an impact on brain development. Researchers have found evidence for structural changes in the brain such as gray matter atrophy and white matter abnormalities (e.g., demyelination, reduced axon size and density) in adolescent participants with greater exposure to the Internet and online games (Lin et al., 2012; Weng et al., 2013; Zhou et al., 2011). According to the authors, the areas in the brain affected by the structural changes regulate emotional behavior, planning, prioritizing, impulse control, cravings, and decision-making.

Research on problematic gaming has often focused on m*assively multiplayer online role-playing games* (MMORPGs), which are a unique genre of games with many features that can contribute to the games becoming problematic when a person engages in it excessively (Hussain & Griffiths, 2009; King & Delfabbro, 2009; Oggins & Sammis, 2012). MMORPGs have evidence suggesting they require more game time each week than other genres of games (Smyth, 2007). MMORPGs are virtual worlds that continue to exist whether a player is present in the virtual world or not. They are persistent worlds that provide flexibility for players to play the game in any fashion they want. These games emphasize lore and story to tie the player to the game world. In addition, MMORPGs are unique by allowing the potential of thousands of players to interact

throughout the game world. These interactions may take place via Voice over Internet Protocol (VoIP) software such as Ventrilo, in-game chats, nonverbal in-game behaviors (e.g., shrugging, laughing), or in-game actions (e.g., trading, stealing kills from others, attacking others). Social interaction often occurs while players pursue game objectives. For example, players may log into the game to chat with other players, level characters, complete quests, engage in a craft (e.g., blacksmithing, alchemy), buy or sell items with other players, take on dungeons, or engage in player versus player combat (PVP). Although there is flexibility in playing MMORPGs, as a general rule, the objective is to advance character levels and equipment to access more features of the game. Game companies often release content periodically to ensure players have more content to access. These updates help increase the number of subscribers, retain current subscribers, or increase the play time of current subscribers to have more exposure to in-game advertising (Feng, Brandt, & Saha, 2007).

Comparatively, other genres of games (e.g., shooters, role-playing) may share some similarities with MMORPGs such as social interaction or character development. Literature has focused on several broad categories of games such as *first-person shooters* (FPS), *strategy or tactics*, *casual or puzzle*, and *role-playing*. For example, FPS games are popular games that focus on killing other players or computer controlled avatars. These games may have a single-player story mode that allows the player to uncover story as they progress against computer controlled enemies. They may also have online components that pit the player against other players in competitive matches. The virtual worlds that the matches take place in are created and discontinued with each match. Another very popular type of game is *strategy or tactics games* such as Starcraft. The

main objectives of these games are to gather resources, build a military force, and destroy the enemy. These games often have single-player story modes, but they have become very popular for online competition. A match may pit two or more players against each other in a free-for-all or on teams. Each match may last a few minutes to a few hours. Another type of game is *casual or puzzle games*. These games are usually more casual and have limited social interaction. The objective is usually to obtain the highest score possible. Another type of game is *role playing games* (RPGs). These games share many of the same elements as MMORPGs except they lack social interaction and almost always have an explicit endpoint. There are a multitude of other game genres, but a majority of the games are single-player and lack the ability to play with other players via the Internet. These game genres do not possess the same depth of gameplay, social interaction, content and story, or choice in how to play as compared to MMORPGs.

Many MMORPG players are college students, ranging from 20% to 46.7% of the samples across studies (Billieux et al., 2013; Cole & Griffiths, 2007; Griffiths et al., 2004; Oggins & Sammis, 2012), and the typical college student is in a developmental stage called emerging adulthood (Arnett, 2000a; 2004; 2006). Emerging adulthood is a crucial time period between adolescence and young adulthood that provides a time for identity exploration. It is also a time of instability, being focused on the self, and seeing a number of potential future possibilities (Arnett, 2004). College students typically have newfound autonomy beginning at the age of 18, which is often gained by leaving home (Arnett, 2000a). Due to a number of factors including a lack of institutional structure from parents, emerging adulthood is a time when mental health issues can emerge (Arnett & Tanner, 2006). College students are also more likely to spend more time alone than

most other age groups and spend the time using media (Arnett & Tanner, 2006). Taken together, it seems plausible that college students may engage in problematic levels of play due to a lack of structure, environmental stress, time alone, and the focus on one's self present during emerging adulthood. Therefore, I focus on college students because they are representative of gamers, and they are in a transitional and significant developmental time period.

Researchers who examined general characteristics of MMORPG players found that most MMORPG players are men in their early to mid-20s (Billieux et al., 2013; Cole & Griffiths, 2007; Griffiths, Davies, & Chappell, 2004; Hussain & Griffiths, 2009; King & Delfabbro, 2009; Oggins & Sammis, 2012) providing further evidence that many MMORPG players are in emerging adulthood. In addition, many players are in relationships or married and have their social needs primarily met offline (Achab et al., 2011; Griffiths et al., 2004). However, there are more than a quarter of players who use online gaming to substitute their social needs (Hussain & Griffiths, 2009) and a fifth of players whose relationships outside of the game suffer as a result of gaming (Cole & Griffiths, 2007). Players often play for mood modification and escapism (Hussain & Griffiths, 2009). Players found to game problematically are less likely to have other leisure activities or see their friends (Achab et al., 2011). They experience a greater in-game sense of power and belonging (Achab et al., 2011). In addition, they are more likely to have difficulties in their social lives, have higher levels of neuroticism, and feel lonely and depressed (Caplan, Williams, & Yee, 2009; Douglas et al., 2008; Peters & Malesky, 2008).

The playtime of MMORPG players has also been examined in the literature. Research has suggested that MMORPG gamers (mostly between ages 11 and 69) play on average between 17.46 and 25.17 hours per week (Billieux et al., 2013; Cole & Griffiths, 2007; Griffiths et al., 2004; Hussain & Griffiths, 2008; Hussain & Griffiths, 2009; King & Delfabbro, 2009). Playtime often occurs in 2.5 to 3 hour sessions between four and ten times a week (Herodotou, 2010; Hussain & Griffiths, 2009). Although the number of hours spent gaming each week is related to problematic gaming, it should not be used as the sole indicator, because each person's context and time demands will be different. Billieux et al. (2013) argued that high involvement in a game must be differentiated from dysfunctional use, because high involvement may not be indicative of problematic use. However, gaming becomes problematic when the amount of time a person spends playing a game begins to interfere with his or her daily life in some meaningful way. For example, a doctoral student who works 70 hours a week might experience negative consequences after 10 hours of play while a person who is not working and has few responsibilities might be able to play substantially longer before experiencing negative consequences or meaningful opportunity costs. Opportunity costs such as giving up watching television might not be meaningful in the sense that missing out on the activity may not make any difference in a person's life. However, losing a job, damaging a relationship, or hurting one's health can be meaningful. Griffiths et al. (2004) found that MMORPG players often make sacrifices to play the games including another hobby or pastime (25.6%), sleep (20%), socializing with friends (10.4%), work or education (9.6%), time with partner (5.4%), and family time (4.6%) suggesting that many MMORPG players are experiencing some level of life interference.

Additional factors that have been associated with problematic gaming include poorer health (King & Delfabbro, 2009; Smyth, 2007), worse academic performance (Smyth, 2007), interference with real-life relationships (Hertlein & Hawkins, 2012; Smyth, 2007), and various motivations for playing (i.e., social interaction, achievement, immersion, and intrinsic; Billieux et al., 2013; Fang, Lin, & Chuang, 2009; Herodotou, 2010; Hertlein & Hawkins, 2012; Wan & Chiou, 2007). It is not clear, but possible, that dissociation and mood modification are related to problematic gaming (Hussain & Griffiths, 2009). MMORPGs are a very popular pastime for many people and can provide a positive experience for many gamers. However, MMORPGs require more play time than other types of games, which increases the risk of problematic play and the potential to engage in destructive behaviors associated with excessive play.

Statement of Purpose

Studying problematic gaming is important because it can promote an enhanced understanding of the issue and allow effective treatments to be developed. The *Diagnostic and Statistical Manual of Mental Disorders 5 (DSM-5)* diagnostic criteria for Internet Gaming Disorder are in the section of the manual requiring further research, which may result in future revisions. Developing a better understanding of the most important features of problematic gaming may inform those potential future changes. The purpose of this study is to understand the experiences of online gamers who game at potentially problematic levels and to help define problematic gaming. Problematic video game playing has been studied using quantitative methods with researchers often using a conceptual understanding based on pathological gambling or substance use disorders. Pathological gambling and substance use disorders were established in the *Diagnostic*

and Statistical Manual of Mental Disorders IV-Text Revision (*DSM-IV-TR;* American Psychiatric Association, 2000) whereas Internet Gaming Disorder was introduced in the *DSM-5* (American Psychiatric Association, 2013). Although gaming is conceptually related to other addictive disorders, it is not included in the addictions section of the *DSM-5* (American Psychiatric Association, 2013). The reasoning related to it not being included in the same section is there is not a substance being consumed that can lead to bodily harm or large amounts of money being betted (although excessive amounts of money could be spent purchasing game related items). The main conceptual feature of problematic gaming is the high opportunity costs such as damaged relationships or lost wages. However, problematic gaming is ill-defined in the literature and may be missing some key elements due to lack of an understanding based solely on quantitative data. Therefore, qualitative research is critical to better defining problematic online gaming by exploring it from the gamers' perspective. Other qualitative gaming studies have included studies on the utility of games such as skill acquisition (Leibovitz, 2007) and experiences surrounding day-to-day gaming behavior (Hussain & Griffiths, 2009). However, no other qualitative studies have focused exclusively on players who game at potentially problematic levels or provided rich descriptions of their experiences. This study aims to gain a deeper understanding of the common experiences associated with the phenomenon of problematic gaming from the perspective of MMORPG players.

The Significance of the Study

Counseling psychologists strive to uphold the APA code of ethics (APA, 2002) and provide services to individuals who are experiencing distress. In addition, psychologists are obligated to develop an awareness and respect for clients' individual

and cultural differences. These principles are particularly important in developing competency to work with individuals with problematic gaming, because video games make up a large cultural component of their identities. As such, more research is needed to determine if conceptualizing problematic online gaming in the same way as substance use disorders or Gambling Disorder is adequate or if key elements are being ignored. There may be symptoms, characteristics of gamers, characteristics of gameplay, social pressures, or environmental factors that are common among people who game at problematic levels that are important in identifying and treating problematic gaming. Qualitative data is needed specifically from online gamers who play at potentially problematic levels to identify commonalities among this population and better inform future revisions to the diagnostic criteria for Internet Gaming Disorder and potential interventions. The first step in developing an effective intervention is to gain a better understanding of problematic gaming. Consensual qualitative research (CQR; Hill, Thompson, & Williams, 1997) was used to develop a clearer understanding of the data by emphasizing inter-rater reliability. This research can help counseling psychologists to establish competency in working with these individuals.

Relevance to Counseling Psychology

Problematic gaming fits within the applied realm of counseling psychology, a health related specialty within psychology. Gelso and Fretz (2001) have helped provide clarity on counseling psychology's roles and approach in therapeutic work. For example, most counseling psychologists spend a majority of their time on remedial work (Gelso & Fretz, 2001), which can be defined as work that focuses on alleviating an already existing problem. In terms of problematic gaming, the majority of the work counseling

psychologists are likely to engage in is helping individuals who are already experiencing distress and dysfunction from problematic gaming. Gelso and Fretz (2001) also discuss preventive and developmental-educative roles, which can be defined as preventing a potential problem from occurring and helping to further develop strength areas, respectively. Prior to preventive measures being developed, a better understanding of problematic gaming is needed. Counseling psychologists would then be able to provide information to the gaming community, college students, parents, or other interested parties about what problematic gaming is, how it affects people, potential warning signs, and how to manage game time to help prevent people from having a problem in the future. In addition, counseling psychologists can help gamers to develop their strengths by identifying the skills the gamers have developed from playing games and helping them to adapt those strengths to other areas in life. For example, it has been suggested that online games can help facilitate increased visual perception, working memory, and reasoning skills (Connolly, Boyle, MacArthur, Hainey, & Boyle, 2012). Counseling psychologists may be able to help gamers to better utilize their reasoning skills for academic or work settings. Counseling psychologists, as well as educators, may also use gaming platforms to help people further develop skills in educational settings. Besides the roles counseling psychologists engage in, Gelso and Fretz (2001) discuss themes that distinguish counseling psychologists' approach in therapeutic work, which are relevant to problematic gaming.

First, counseling psychologists primarily work with clients who have intact personalities (Gelso & Fretz, 2001). In other words, clients with intact personalities will usually fall within the neurotic spectrum rather than the psychotic spectrum on

psychological health (Gelso & Fretz, 2001). Problematic gaming can often be conceptualized as an ineffective coping strategy that allows a person to escape the psychosocial stressors of everyday life (Hussain & Griffiths, 2008; Wood, 2008). Regardless of a person's underlying problem, the coping strategy itself becomes a source of stress that can affect a person's mental health. Therefore, problematic gaming can be conceptualized as a disorder that often falls within the neurotic spectrum. However, it is probable that there are people with psychosis who also game problematically. It is possible temporary states of psychosis could be produced from problematic gaming from sleep deprivation as researchers have found evidence of increased psychosis-like symptoms (e.g., perceptual distortions, cognitive disorganization, anhedonia) in healthy individuals following a night of complete sleep deprivation (Petrovsky et al., 2014).

Second, counseling psychology focuses on identifying and developing clients' strengths rather than solely focusing on clients' deficits (Gelso & Fretz, 2001). Counseling psychologists believe clients are capable of growth and change, and they will often use clients' strengths as a source to facilitate those changes. From this perspective, people who suffer from any addiction-related problem, including problematic gaming, are capable of change. Counseling psychologists can help players who game at problematic levels identify strengths to facilitate changes in gaming behavior. For example, they could help gamers recognize the skills they have developed and help them to apply those skills more generally than solely within a virtual environment.

Another focus in counseling psychology is person-environment interactions (Gelso & Fretz, 2001). Counseling psychology focuses on understanding people within their situation rather than maintaining a sole focus on intrapsychic conflicts or situational

factors. This theme is particularly important for problematic gaming among college students, because attempting to understand this issue by only examining the person (e.g., ability to cope with stress) or his or her environment (e.g., stressors) will exclude important variables for understanding how gaming fits into his or her overall life. For example, gaming may fit into a person's context by providing a primary source of entertainment or a means of escape or socialization. If treatment focuses solely on helping the client reduce play time without skills training or identification of alternative coping strategies, then treatment will likely be ineffective. Therefore, it is important to maintain counseling psychology's focus on the holistic treatment of clients.

Finally, counseling psychology has been responsive to societal shifts that bring awareness to issues. This responsiveness began with the birth of counseling psychology after services were needed for returning World War II veterans (Meera & Myers, 1999). The field has a long-standing history of working with special populations that has since expanded to include a focus on marginalized populations such as ethnic minorities, women, LGBT, and people with disabilities. Each population has unique issues that need to be better understood in order to provide valuable services to them. The rise of the Internet and the advent of online gaming is a new emerging societal issue. Online gaming has a unique culture including sharing a language that contains much jargon, conforming to rules (e.g., not taking loot from players who need it), and behaving in acceptable ways (e.g., acting more maturely). Therefore, better understanding the gaming culture and the process involved in the emerging issue of problematic online gaming falls within the scope of counseling psychology.

CHAPTER II REVIEW OF THE LITERATURE

The purpose of this chapter is to review the literature available on gaming. The section begins by providing a brief history of gaming and how that history led up to online gaming. Next, I review literature pertaining to the advantages and positive applications of gaming to provide a balance against the mostly negative focus of this study. Then I discuss the controversy over addictions, the changes in diagnostic classification of addiction-related disorders, how online gaming fits within the addiction controversy, and ongoing diagnostic issues pertaining to behavioral-based addictive disorders. In the following section, I describe massively multiplayer online role-playing games (MMORPGs) and the characteristics of MMORPG players. I then review literature relevant specifically to problematic gaming and discuss the relationship between flow and addiction as well as the ambiguousness of the relationship between aggression and video games. Next, I discuss the theory of emerging adulthood and how the theory applies to the population of interest in this study. Finally, I discuss the theoretical paradigm and research questions for this study.

The Evolution of Online Gaming

Video games have evolved over time from the simplicity of hitting a ball back and forth to the complex online environments of today. One of the largest forerunners of

modern video games appeared in 1958 with the advent of Tennis for Two (Gettler, 2008). The game used an oscilloscope for a screen and allowed two people to play the two-dimensional tennis game. Then, in the 1970s, multi-user dungeons (MUDs) were introduced that allowed multiplayer interaction and cooperation (Barnett & Coulson, 2010). MUDs were persistent, completely text-based games in which players typed commands to interact with the game. That is, players were required to read everything from conversations to every action occurring in the game. MUDs had a large influence on the development of massively multiplayer online games (MMOs) as did tabletop games dating back to 1812 and J. R. R. Tolkien's Lord of the Rings (Yee, 2014). MMOs are games that expanded multiplayer to allow hundreds or thousands of players to have the potential to interact. MMOs developed as graphics became more sophisticated over time and the Internet became more accessible (Achterbosch, Pierce, & Simmons, 2008; Barnett & Coulson, 2010).

A popular type of MMO is massively multiplayer online role-playing games (MMORPGs), which debuted with Neverwinter Nights in 1991 and required America Online users to pay the standard AOL hourly fee ($4 to $8 depending on time and rate plan) to play the game (Olivetti, 2010; Yee, 2014). Fees eventually changed to a flat monthly rate that was required to log onto the game. Early MMORPGs had thousands of players, but the popularity of these games has increased over time and one of the largest MMORPGs, World of Warcraft, reported having 11.5 million players at its peak (Blizzard Entertainment, 2008). This large player base helped account for the $11.9 billion of sales from online gaming, which made up a portion of the gaming industry's $74 billion of sales (Rose, 2011). An economist in 2001 determined that the world in the

MMORPG EverQuest, Norrath, was the 77th richest economy in the world and that the currency used in EverQuest was more valuable than the Japanese yen or Italian lira (Castronova, 2001). Considering the player base has increased since 2001, it would be informative to see how an MMORPG economy compares to the real world today. However, I have been unable to find more recent studies that have made a comparison.

Aside from MMORPGs, the most common types of games that have been reviewed in the literature include *first-person* and *third-person shooters*, *strategy or tactics*, *casual*, *role-playing*, *platformers*, *simulation*, and *sports*. I briefly describe these games to help provide the reader with an understanding of these types of games for when the advantages and applications of video games are discussed in the following section. *First-person shooters* (FPS) and *third-person shooters* (TPS) focus on gameplay structured around shooting weapons. The primary difference between these two types of games is the perspective the game takes. That is, the player either sees the virtual world through the eyes of the avatar or the player controls an avatar seen on the screen. These games often have an online component that allows players to compete against other players or cooperate against computer-controlled characters. The virtual worlds are temporary and last the duration of the match. *Strategy or tactics games* focus on gathering resources, building military forces, and destroying the enemy. These games also have temporary virtual worlds where players can compete with one another or with computer-controlled opponents. Matches are ongoing until one person or team destroys every opponent, which may occur quickly or last for hours.

Casual games may include different genres of games such as puzzle, trivia, or hidden object games. They are distinguished from other games because they have simple

rules and do not require long commitments. For example, puzzle games often require the player to perform actions such as matching colored gems, and the player receives a score at the end of a level or specified time limit. Hidden object games require the player to find hidden objects within a picture. These games are common on social media such as Facebook, but they often limit social interaction to comparing scores.

Another type of game is *role-playing games* (RPGs). There are many shared elements between MMORPGs and RPGs such as character development and an emphasis on story. However, they lack social interaction due to being single-player and usually have an explicit endpoint. Another type of single-player game is *platform games* where the player jumps between suspended platforms. Examples of these games include Donkey Kong and Super Mario Bros. *Simulation games* are a broad genre of games that simulate various aspects of real life. These simulations range from construction and management such as building cities (e.g., SimCity) to simulations about everyday life (e.g., The Sims). Another type of game is *sports games*. These games will allow a player to play a particular sport (e.g., football, basketball) against a computer-controlled team or another player. However, multiplayer options were traditionally restricted to the physical console rather than via the Internet but online options are beginning to be seen. The games generally allow the player to control one team member at a time while the rest of the team members are controlled by the computer until the player takes control of another character.

MMORPGs are distinguishable from all these games because of their persistent worlds, ability to bring thousands of players together in one world, focus on lore and character development, and flexibility to allow players to play the game how they want.

That flexibility allows players to choose what activities they want to engage in (e.g., PVP, exploration, questing) as well as choose how they want to meet their goals. MMORPGs are described in greater depth later in this review. First, I review the advantages and applications of video games to provide a more balanced view of video games.

Advantages and Applications of Video Games

The advantages and productive applications of video games have been studied across different types of games. In particular, online games, casual games, and simulators such as cybercycling have been used to study the benefits derived from playing video games. There is little information specifically targeting the advantages of MMORPGs, but it is feasible the data applies across various types of games. Studies have investigated the advantages of games including the social environment (Griffiths et al., 2004; Jansz & Tanis, 2007; Kelly, 2004), psychological health (Russoniello, O'Brien, & Parks, 2009a; Russoniello, O'Brien, & Parks, 2009b; Russoniello, Fish, O'Brien, Pougatchev, & Zirnov, 2011), positive effects on cognition (Anderson-Hanley et al., 2012; Connolly et al., 2012; Jaeggi, Buschkuehl, Jonides, & Shah, 2011), and improvements in visual-spatial abilities (Granek, Gorbet, & Sergio, 2010). Studies have also investigated productive applications of video games such as mental health interventions (Primack et al., 2012) and simulations to train employees (Sitzman, 2011).

Online games such as *first person shooters* (FPS), *casual games*, and MMORPGs are appealing to many players largely because of the social environment (Griffiths et al., 2004; Herodotou, 2010; Jansz & Tanis, 2007; Kelly, 2004). Online gaming can enable gamers to maintain contact with friends through a virtual world and enhance social

interactions (Hussain & Griffiths, 2008). The games also serve as a means to be with real-life friends, maintain distant relationships, and provide gamers with a more enjoyable experience when they are physically present with other gamers (Herodotou, 2010). A common stereotype of gamers is that they are loners attempting to escape social interaction. However, the opposite was reported by participants ($N = 751$) recruited through two Dutch websites dedicated to online FPS games, which are typically thought of as more competitive than cooperative (Jansz & Tanis, 2007). Eighty percent of the participants reported being part of a clan (i.e., an organized group of players that regularly play together) and rated social interaction as an important motivator to play. In addition, the strongest predictor of time spent playing was a social motive. In another study, Chen, Shen, and Ma (2012) found that designers and players of popular Facebook games reported that ease and convenience, friendliness and liveliness, and social interaction were the most appealing factors of games. Thirty-five percent of MMORPG players reported social interaction and forming groups in virtual worlds were the most appealing aspects of online gaming (Griffiths et al., 2004). MMORPGs can also provide players with opportunities to explore their identities in ways not available in real-life (Kelly, 2004).

The positive effects video games can have on psychological health have also been investigated. In particular, *casual video games* can improve psychological health (Russoniello et al., 2011). *Casual video games*, such as *puzzle games*, are defined as games that are considered fun, easy to learn, quick to access, and require no previous skills or regular time commitments (Russoniello et al., 2009b). In one study, participants ($N = 59$) diagnosed with clinical depression were divided into a control and experimental

group (Russoniello et al., 2011). The experimental group played a *casual game* for 30 minutes in the lab and for at least 30 minutes, three times per week for a month. The results indicated those who played *casual games* had significant reductions in depressive symptoms after the brief period of play in the lab and in the long-term than the control group. In similar studies, participants who were randomly assigned to an experimental group to play a *casual game* displayed reductions in tension, depression, anger, confusion, emotional fatigue, and an improvement in mood (Russoniello et al., 2009a; 2009b) as compared to the control group who just surfed the Internet. These studies add evidence that video games can modify moods, which may be one factor that can lead to problematic play for some gamers.

Other studies have demonstrated that video games can have positive effects on cognition. Connolly et al. (2012) conducted a literature review on the benefits of entertainment and serious (i.e., games designed to train or educate rather than provide pure entertainment) games. They found mixed results in articles concerned with knowledge acquisition and content understanding. That is, they found evidence that games improved knowledge in some studies while they did not find a difference between participants who used a game and those who used other tools such as computerized flash cards in other studies. However, the studies the authors reviewed found evidence that game players displayed advantages in perceptual and cognitive skills such as an increased ability to track more items and improved working memory as compared to non-gamers. In addition, players demonstrated scientific reasoning skills in games such as World of Warcraft. Among older adults, video game playing may delay behavioral deficits in those with Alzheimer's disease (Granek et al., 2010). Anderson-Hanley et al. (2012) randomly

assigned and compared older adults using stationary cybercycling against older adults using traditional stationary cycling on cognitive functioning. Older adults who used cybercycling had better cognitive functioning for the same amount of effort suggesting that cognitive stimulation such as outpacing avatars, navigating landscapes, and anticipating turns during physical exercise may help prevent cognitive decline. Improvements in cognitive performance have also been demonstrated in elementary and middle school children after training with a video puzzle game (Jaeggi et al., 2011). Thirty-two participants trained for 15 minutes, five times each week for a month with the video puzzle game. The control group (n = 30) used a game to test vocabulary and general knowledge. The researchers found that participants using the video puzzle game demonstrated improvements on memory tasks, skills for acquiring new knowledge, and critical thinking as compared to the control group. The improvements persisted at a three month follow-up.

Another suggested benefit of video game playing includes an improvement in people's abilities in visual-spatial activities. For example, there are differences in brain activation between experienced gamers and less experienced gamers when engaging in visually guided movements (Granek et al., 2010). Experienced gamers appear to have increased activity in an area related to decision making in the prefrontal cortex when compared with less experienced gamers. These brain differences might account for differences found in expert gamers and non-gamers. For example, expert gamers perform better at tracking objects moving at greater speeds, switching between tasks more quickly, making quicker and more accurate decisions about rotated objects, and

performing more accurately on a visual short-term memory test than non-gamers (Boot, Kramer, Simons, Fabiani, & Gratton, 2008).

The productive applications of video games have also been studied. For example, video games can have a positive impact when used as part of health and mental health interventions. A meta-analysis of 38 articles that used randomized control trials showed video games improved outcomes of psychological therapy (69%), physical therapy (59%), increased physical activity (50%), clinical skills training (46%), health education (42%), pain distraction (42%), and disease self-management (37%; Primack et al., 2012). The appeal of gaming has even been recognized by organizations that have created simulation games to train employees. A meta-analysis of 65 studies investigated the instructional effectiveness of simulation games on employee training (Sitzman, 2011). Employees who trained with simulation games demonstrated 20% higher self-efficacy, 14% higher procedural knowledge, 11% higher declarative knowledge, and 9% higher retention than the comparison group.

In summary, video games appear to have many advantages. Games with a social environment have an increased appeal (Griffiths et al., 2004; Jansz & Tanis, 2007; Kelly, 2004) and can enhance social interactions (Hussain & Griffiths, 2008). Studies have provided evidence that games can improve psychological health such as reducing depressive symptoms (Russoniello et al., 2009a; Russoniello et al., 2009b; Russoniello et al., 2011). Studies have indicated that playing games can enhance perceptual and cognitive skills (Connolly et al., 2012; Granek et al., 2010; Jaeggi et al., 2011) and slow the cognitive declines associated with aging (Anderson-Hanley et al., 2012). Video games have also been linked to improvements in visual-spatial abilities (Granek, Gorbet,

& Sergio, 2010). Finally, the productive applications of video games have been demonstrated through improved therapy outcomes (Primack et al., 2012) and enhanced employee training (Sitzman, 2011). Taken together, it appears people from settings such as medicine, mental health, education, and employment have recognized that gaming can be an engaging technology. Gaming has become a complex issue as many benefits can be derived from playing games, but that same appeal can lead some gamers to play excessively and problematically.

The Addiction Controversy

A complex issue brought to light from the increasing popularity of gaming is whether an addiction is limited to substances or if it can be expanded to include behaviors or processes. The conceptualization of addiction has shifted over time, which has led to some controversy over what constitutes an addiction. This section provides an overview of process addictions, the reclassification of addictions, how online gaming fits within the controversy, and persistent diagnostic issues related to process addictions.

Process Addictions

Process addictions can be defined most simply as a dependency on processes or activities such as gambling, eating, sex, or shopping rather than substances (Process, 2012). That is, a person becomes dependent on an activity that externally facilitates neurochemical reactions in the brain. For example, Meerkerk, Eijnden, and Garretsen (2006) argued that people can be addicted to applications used via the Internet. Because the Internet serves as a means to the addictive behavior, the term Compulsive Internet Use is used to cover these activities. The neurochemical reactions facilitated in the brain

that are of the most interest in addiction-related phenomena take place within the brain's reward system.

The mesolimbic reward system has been important in helping to redefine addiction-related disorders, although there has been some concern that the diagnostic system for psychiatric disorders can be undermined if variations of normative behavior are pathologized (Karim & Chaudhri, 2012). However, the authors also stated that new evidence is adding to our understanding of behavioral disorders. A key component underlying all addiction involves the body's natural reward system. From an evolutionary perspective, the mesolimbic reward system was formed during a time of scarcity for resources to increase motivation to obtain resources (Karim & Chaudhri, 2012). People with substance addiction have a deficient reward system and may use the substances as a way to compensate for this deficiency (Blum, Cull, Braverman, & Comings, 1996). In other words, natural reinforcement is not sufficient reinforcement for substance users and the substances are used to compensate. However, it is not known if a deficient reward system leads to substance use or if substance use leads to a deficient reward system. Similar findings of deficiencies in the reward system have been demonstrated among pathological gamblers and gambling helps to compensate by offering stronger reinforcement (Reuter, Raedler, Rose, Hand, Glascher, & Buchel, 2005). In addition, problematic gaming has been associated with a deficient reward system (Weinstein, 2010), and problematic gaming is most commonly seen among those using massively multi-player online role-playing games (Karim & Chaudhri, 2012). These data suggest addiction may exist as a result of compensating for an inadequate reward system in the brain. If that is the case, it is probable that addictions can be formed for any substances or

activities that can lead to increased stimulation of the reward system, create cravings, and impair control over the behavior (Karim & Chaudhri, 2012). Essentially, people learn they can be reinforced by a behavior or substance, which can lead to habit formation or sensitization. The notion that a deficient reward system may be associated with excessively using substances, games, or engaging in gambling and that these activities may be used to compensate for a deficiency has contributed to a reconceptualization and reclassification of addictive disorders in the *Diagnostic and Statistical Manual of Mental Disorders 5 (DSM-5;* Ashley & Boehlke, 2012).

Diagnostic Reclassification

The *DSM-5* created a new section called "Substance Use and Addictive Disorders" illustrating a reconceptualization of addictive disorders by including process addictions. "Gambling Disorder" has been included in the new section and "Internet Gaming Disorder" has been included in a section requiring additional research (American Psychiatric Association, 2013). In the *Diagnostic and Statistical Manual of Mental Disorders IV-Text Revision* (*DSM-IV-TR)*, Pathological Gambling was classified as an impulse-control disorder (American Psychiatric Association, 2000), but it conceptually was one of the few, if not the only, process addictions included. In other words, Pathological Gambling was the only non-substance related disorder that shared many common features with substance use disorders. Internet Gaming Disorder was not included in the *DSM-IV-TR*, but it is now being considered as a diagnosis. The criteria for Internet Gaming Disorder are closely aligned to the criteria for Gambling Disorder and for any substance use disorder because they all share almost identical criteria. See Table 1 for the full criteria for Internet Gaming Disorder from the *DSM-5*. Only two of the

proposed criteria for Internet Gaming Disorder - escape and mood modification, and using deception to cover the amount of use - are not covered in the substance use disorders. This exclusion is perplexing, because it is arguable that substances are used for escape-based coping and alleviating negative moods (Turner, 2008). In addition, some clients in counseling are misleading about their substance usage (DeAngelis, 2008) suggesting that deception may be common among people with substance use disorders as well. Regardless of this discrepancy, Internet Gaming Disorder is being conceptually linked to the same criteria used for substance use disorders adding further evidence of the consolidation of addictions in the field.

Table 1

Internet Gaming Disorder (American Psychiatric Association, 2013)

Proposed Criteria (must meet five or more)
1) Preoccupation with Internet games.
2) Withdrawal symptoms when Internet gaming is taken away (e.g., irritability, anxiety, sadness).
3) Tolerance – the need to spend increasing amounts of time engaged in Internet games.
4) Unsuccessful attempts to control participation in Internet games.
5) Loss of interests in previous hobbies and entertainment as a result of, and with the exception of, Internet games.
6) Continued excessive use of Internet games despite knowledge of psychosocial problems.

Table 1 continued.

7) Has deceived family members, therapists, or others regarding the amount of Internet gaming.

8) Use of Internet games to escape or relieve a negative mood.

9) Has jeopardized or lost a significant relationship, job, or educational or career opportunity because of participation in Internet games.

Online Gaming Controversy

Regardless of the consolidation of addiction-related disorders in the *DSM-5*, there is an ongoing debate about whether or not problematic gaming can be classified as an addiction (Lemmens, Valkenburg, & Peter, 2009). The traditional view of addiction focuses on dependency created by some ingested substance that internally influences bodily chemistry, especially in the brain (Erickson, 2007). That is, a substance must cross the blood-brain barrier and facilitate certain reactions such as blocking neurotransmitter reuptake or stimulating the release of additional neurotransmitters. In this way, researchers postulated that rewards associated with substance use were due to properties of the substances, and therefore, substance use disorders should be classified separately from other disorders and from overuse of activities (Wood, 2008). Opponents of gaming addiction have also argued that overindulgence in an activity may be a coping mechanism for other underlying issues (e.g., mood modification and escapism; Hussain & Griffiths, 2008; Wood, 2008), and that the activity itself does not have any inherent properties that facilitate overusing the activity. In addition, Chee (2006) argued, after interviewing gamers in Korea, that excessive gaming was due to cultural and environmental factors

rather than to addiction. For example, she stated widely available broadband and personal computer (PC) bangs promoted game play in Korea. PC bangs are buildings where players can socialize with friends in a more relaxed environment while playing games for an hourly fee. These places allow players to exhibit their gaming skill, but if someone does not play well, he or she may become the subject of Wang-tta (i.e., being singled out and ostracized). Therefore, players may play longer hours to improve their gaming skill.

An alternative view of addiction postulates that problematic gaming can be classified as a process addiction. Recent research has uncovered some neurological properties that suggest activities, especially gaming, can affect the brain in similar ways as substances such as cortical reactivity to cues and decreased functioning in the brain's reward system (Thalemann, Wolfling, & Grusser, 2007; Weinstein, 2010). For example, Thalemann et al. (2007) used an electroencephalograph to test the cortical reactivity of excessive game players and casual players when presented with a variety of visual cues. The groups only differed on game-related cues where excessive game players displayed stronger reactions than casual players. The result suggests that gaming cues are arousing for excessive game players and may sensitize the mesolimbic dopaminergic system (i.e., the reward system), which creates an incentive to engage in gaming. In addition, many features of process addictions such as a failure to resist an urge or craving, mood modification, tolerance, and interference with relationships and life functions are similar to substance addictions (Grant, Potenza, Weinstein, & Gorelick, 2010).

Although evidence is accumulating to consider problematic online gaming a disorder, it remains unclearly defined in the literature and faces problems related to the categorical approach in the *DSM-5*. The American Psychiatric Association (2013)

attempted to define problematic gaming by introducing Internet Gaming Disorder in a section requiring further research. The *DSM-IV-TR* and *DSM-5* have been scrutinized for using a categorical diagnostic approach and ignoring that symptoms do not carry the same weight in determining a diagnosis (Hoermann, Zupanick, & Dombeck, n.d.). For example, Pathological Gambling has faced some scrutiny in how the *DSM-IV-TR* has been used to define when gambling is severe enough to merit a diagnosis (Weinstock, Whelan, & Meyers, 2008). The *DSM-IV-TR* and *DSM-5* provide standard definitions for various disorders, and these definitions are used to diagnose mental health disorders based on criteria cutoffs, which creates a dichotomous structure (i.e., someone is diagnosed with a disorder or not). To meet the criteria for Gambling Disorder, someone must meet at least four of the nine criteria (American Psychiatric Association, 2013). This dichotomous structure can exclude those who do not meet the required cutoff but still experience negative consequences. For instance, a person may be (a) preoccupied with gambling, (b) gamble when he or she feels distressed, and (c) lose his or her marriage as a result of creating financial burdens on the family, but the person may not meet any of the other six criteria.

Likewise, the American Psychiatric Association proposed that someone would need to meet at least five of the nine criteria for Internet Gaming Disorder to indicate a diagnosis. However, it seems likely that meeting fewer than five criteria may still indicate a problem such as the following criterion: “Has jeopardized or lost a significant relationship, job, or educational or career opportunity because of participation in Internet games” (American Psychiatric Association, 2013, p. 795). In other words, clients may still struggle with an issue, although they may not meet criteria to be diagnosed with a

disorder. The criteria for substance use disorders in the *DSM-5* have evolved into a more dimensional approach to diagnosis by lowering the threshold to two or more criteria and providing symptom severity (i.e., mild, moderate, severe; Hasin et al., 2013). It would make logical sense for process addictions such as Gambling Disorder and Internet Gaming Disorder to have reduced thresholds to better identify clients meriting intervention. Therefore, I define problematic gaming, adapted from a problematic gambling definition from McComb and Hanson (2009), as when a person continues to game regardless of negative consequences (e.g., distress or meaningful opportunity costs such as one's health or job) even when they may not necessarily meet full diagnostic criteria. I believe such a definition conceptually maintains that problematic gaming is an addiction-related disorder and uses a dimensional approach to identifying severity.

Massively Multiplayer Online Role-Playing Games (MMORPGs)

MMORPGs have often been linked to problematic online gaming (Karim & Chaudhri, 2012). MMORPGs are distinguishable from other games because of features such as their persistent worlds, social environments, focus on lore and story, flexibility to be played with much freedom, and character development. If someone decides to install a MMORPG, he or she would be able to log into a server, create a character, and interact with thousands of other players in real-time (Smyth, 2007). The games are often in fantasy-based settings ranging from medieval to space environments. The virtual world itself is persistent and evolves even if the player is absent from the world. MMORPGs often allow players to customize their characters through selecting a class (e.g., warrior, mage), race (e.g., elf, orc), gender, faction, an appearance (e.g., face, hair), and providing choices in character development.

An unusual aspect of the character creation process is the phenomenon of gender swapping. A majority of online gamers (54% of men and 68% of women) have gender swapped (Griffiths et al., 2004). Hussain and Griffiths (2008) describe gender swapping as a player who creates a character of the opposite gender. The reasons for gender swapping have mostly been speculation. For example, Hussain and Griffiths argued that women might gender swap to avoid harassment and gain equal treatment within the game and men might gender swap to gain favors from other male players. In addition, gender swapping may allow some people to experiment in ways not possible to explore in real-life (e.g., exploring gender and sexual identity) or serve as a means of having something different or fun (Hussain & Griffiths, 2008; Kelly, 2004).

Character development usually progresses through gaining levels after accruing enough experience points. The amount of experience points needed to level up increases at each new level, requiring more time to be put into the game to advance. Quests often help players gain levels by providing a clear objective for the player and then rewarding the player with items, money, and/or experience points at the conclusion of the quest. Once a character levels up, they become stronger and many games provide the player with a choice of what skills or talents to improve. At the maximum level, a player's focus will switch to obtaining better equipment to augment the character's attributes. The games provide goals for the player through quests and dungeons to help players acquire gear to further develop their characters. More importantly, quests and dungeons help alleviate feelings of boredom during the grind to reach the maximum level. Grinding is repetitively killing enemies for the purpose of obtaining a rare drop (i.e., an item that can

be taken from a corpse) or gaining levels. However, there is never a marker that indicates the game is beaten, because the games are meant to be ongoing.

Players are also immersed in a virtual community with other players where they may form friendships, temporarily group to achieve an objective, engage in commerce, or have general discussions. The games provide inter-zonal communication via chat channels such as general chats or private messages (Griffiths et al., 2004). Players will often join guilds, which are organizations of players who come together because of shared interests and goals within the game. Players often play with real-life friends which can enhance these relationships because they have something to talk about outside of the game (Kelly, 2004; Snodgrass, Lacy, Francois Dengah II, & Fagan, 2011). Having friends in the game can make it more difficult to quit an MMORPG or cut back on play time.

Player preferences have been a large driving factor in the development of MMORPGs, which has enhanced their appeal. An online survey asked 122 participants about their perceptions and preferences for MMORPGs (Achterbosch et al., 2008). Using a mean rank across all the participants, players preferred medieval/fantasy settings over other settings (e.g., futuristic, post-apocalyptic, space). The top ranked features included having lots of class/skill options (n = 78), graphics and effects (n = 71), large world to explore (n = 60), player versus player (PVP) combat (n = 58), socialization (n = 53), and a diversity of content (n = 51). Players reported disliking cheats and exploits (n = 100) and running out of content (n = 89). In the same survey, qualitative data were also provided by participants about improvements they would like to see in future MMORPGs. These included improvements in the PVP combat systems, frequency of

story-oriented quests, graphics and effects, frequency of content updates, classes and skills, crafting systems (e.g., professions such as blacksmithing), combat systems, downtime (e.g., server maintenance), player impact on the world, player created content, economy, and changing environments. Although player preferences and suggestions for improvement are a driving factor in game development, online games in their current state still maintain an appeal to many players.

General factors that make MMORPGs appealing include the story of the game, available races, available skills, experience point system, player versus player combat, game economy, dungeons, and how quests work (Kelly, 2004). The reward system in the games usually allows players to make daily progress without any significant risks when the player dies in the game. For example, a player might lose virtual money or have to repair in-game equipment after dying, but the game is not permanently over. This system allows players to consistently move forward and more easily track their progress. MMORPGs are analogous to having the perfect job for many people. Players have clear objectives, no deadlines, on the job exploration and learning, flexible hours, frequent rewards, control, autonomy, and all the necessary tools for learning to play (Kelly, 2004). The characteristics of MMORPGs (e.g., social environment and community, clear goals, player progress, flexibility, customization of avatar, reward system, periodic game updates, focus on story, no explicit endpoint) along with continuously improving graphics and sounds create much more of an engaging experience than most other types of games. This engaging experience uniquely primes MMORPG players for developing a process addiction to the game.

Characteristics of MMORPG Players

There are many inaccurate stereotypes about video game players. For example, many people think video game players are young male adolescents. There are a multitude of other stereotypes culturally transmitted via mediums such as television or other media that gamers are socially inept, isolated, lazy, or otherwise inadequate to join real-life interactions. The purpose of this section is to describe what research has uncovered about MMORPG players specifically. A majority of MMORPG players (82.7% to 87%) are males (Achab et al., 2011; Billieux et al., 2013; Griffiths et al., 2004; Oggins & Sammis, 2012). The percentage of female online gamers has ranged from 15% to 19% in studies (Griffiths et al., 2003; Griffiths et al., 2004). The mean age of participants has varied across studies between 20.30 years of age to 26.22 years of age (Billieux et al., 2013; Cole & Griffiths, 2007; Hussain & Griffiths, 2009; King & Delfabbro, 2009; Oggins & Sammis, 2012). Between 8% and 20% of players were below the age of 18 (Cole & Griffiths, 2007; Griffiths et al., 2004). Between 30% and 43.9% of the players were married or in a relationship (Achab et al., 2011; Griffiths et al., 2004). Twenty-one percent of players had children (Achab et al., 2011). Many of the players (42%) had higher education qualifications and between 34.5% and 46.7% were students (Achab et al., 2011; Billieux et al., 2013; Cole & Griffiths, 2007; Griffiths et al., 2004; Oggins & Sammis, 2012). Between 23.8% and 28.7% of participants were working in the IT and computing sector (Billieux et al., 2013; Griffiths et al., 2004). The mean number of hours played each week varied between 17.46 hours to 25.69 hours (Billieux et al., 2013; Caplan et al., 2009; Cole & Griffiths, 2007; Griffiths et al., 2004; Hussain & Griffiths, 2008; Hussain & Griffiths, 2009; King & Delfabbro, 2009). This preliminary data

suggests the average online gamer may be a male adult in his mid-20s who is highly educated or pursuing higher education and spends much free time playing a MMORPG. However, greater depth of information has been gathered through a number of online surveys.

Griffiths and colleagues have conducted a series of online surveys that provided detailed information about MMORPG players. In one survey, Hussain and Griffiths (2008) found that 41% of their sample (N=119) played four to six times a week, 39% played 7 to 10 times a week, and 2% played more than 10 times a week. Forty-seven percent played for 210 minutes or more and 20% played between 150 and 209 minutes per session. Players averaged 17.46 hours of game time a week. Two-thirds of the participants reported experiencing excitement while playing online games with reasons varying from challenge to social interaction. Most players (63%) did not have their social needs met through online gaming, but 28% reported online gaming met their social needs. Thirty-four percent reported playing online games to change their mood, 41% reported playing to escape stressors, and half reported feelings of being absorbed by the games. In another online survey, MMORPG players (N = 540) reported an average of 25 hours played each week with a quarter of players playing more than 30 hours each week (Griffiths et al, 2004). Playing 25 hours a week often requires sacrificing other activities. These activities included sacrificing another hobby (25.6%), sleep (20%), socializing (10.4%), work or education (9.6%), time with partner (5.4%), and family time (4.6%).

A third online survey (Cole & Griffiths, 2007) providing detailed information about the characteristics of MMORPG players found that the largest portion of gamers in their sample (N = 912) were college students (46.7%). Only one-fifth of the players were

under the age of 18 and the mean age was 23.6 years. World of Warcraft was the most popular MMORPG, especially among female respondents. The mean number of hours played per week in this sample was 22.85 with 3.6% playing more than 60 hours a week. The survey also asked about online and offline social interactions. Three quarters of the participants formed good friendships within the game. Women (55.4%) were more likely to meet online friends in real life than men (37.6%) and a third of the participants reported being attracted to another player. A majority of participants (81%) reported playing with real-life friends and family. A minority of players reported playing online games negatively affected their relationship with those they played with (2.6%) and with relationships outside the game (20.3%). Two-thirds reported positive effects on their relationships and almost half thought their online friends were comparable to their real-life friends. Many players (39.3%) discussed sensitive issues with online friends that they would not discuss with real-life friends. Research on the characteristics of MMORPG players has helped paint a clearer picture of who plays the games in general. Other research has focused on better understanding a subset of players who game at problematic levels.

Emerging adulthood. The average online gamer falls within the developmental period called emerging adulthood. Emerging adulthood provides a theoretical framework for why college students who play MMORPGs are the target population of this study. Arnett developed his theory of emerging adulthood (Arnett, 2000a; Arnett, 2004; Arnett & Tanner, 2006) based in part on the previous theories of Erikson (1968), Levinson (1978), and Keniston (1971) and recognized the increasing trend that many people have a gap between adolescence and reaching full adulthood. Emerging adulthood is a stage in

life that does not have clearly defined boundaries for everyone, but it does describe what is typical today. Most people in the U.S. today begin to experience more freedom at the age of 18 whether from leaving home or being granted more freedom within the parents' home (Arnett, 2000a). This newfound autonomy can typically define the end of adolescence. However, most people proceed throughout their twenties without fully perceiving themselves as adults (Arnett, 2000a; Arnett, 2004). That is, they have not achieved certain milestones that are conventionally used to define the transition into adulthood in western cultures: financial independence, making independent decisions, accepting responsibility for oneself, marriage, and children (Arnett, 2004). These events typically occur by the age of 30. Therefore, emerging adulthood describes normative development roughly between the ages of 18 and 25, although it may extend into the latter 20s, in today's industrialized societies (Arnett, 2000a; Arnett, 2004; Arnett & Tanner, 2006; Sussman & Arnett, 2014).

Emerging adulthood is a time for identity exploration, instability, being focused on the self, feeling in-between the transition from adolescence to adulthood, and possibilities (Arnett, 2004). Emerging adults clarify their identities by exploring who they are and what they want in life, especially in terms of relationships, work, and educational experiences (Arnett, 2000a; Arnett, 2004). They explore what qualities they like and dislike in partners to determine what kind of partner would best suit them through life. Work experiences become more focused on determining what emerging adults are good at, find satisfying, and are likely to obtain. Education is explored by trying majors to determine a fit. However, the frequent changes in jobs, majors, relationships, and living situations mark a time of instability (Arnett, 2004). The life plan of most emerging adults

is altered and revised as they explore their identities. Emerging adults tend to have few daily obligations and commitments to others; therefore, they can be more self-focused and make decisions with only their own interest in mind (Arnett, 2004; Arnett & Tanner, 2006). Having fewer daily obligations, emerging adults who engage in online gaming may find themselves spending much time on the games, especially when online gaming is a part of their identity. Sixty percent of emerging adults in the United States reported feeling in-between adolescence and adulthood (Arnett, 2004). Even thirty percent of adults in their late twenties and early thirties reported feeling in-between. Finally, emerging adulthood is a time of possibilities because many different, potential futures remain open and the direction a person takes has not been decided with certainty (Arnett, 2004).

Arguably, emerging adulthood is a developmental phase primarily available to those pursuing post-secondary education, because most people will wait until they have finished school before making serious considerations about marriage and parenthood (Arnett, 2004). Arnett (2004) described a difference in the median age of marriage when comparing industrialized nations with developing countries. The norm in industrialized nations is to delay marriage until the mid to late twenties. In the United States, the median age of marriage increased four years between 1970 and 2000 (Arnett, 2000; Arnett, 2004). In addition, there is a gap in developing countries between people living in rural and urban areas where urban populations are more likely to experience emerging adulthood (Arnett, 2004). Therefore, it seems likely that college students are highly represented in this unstable, self-focused developmental period of identity exploration.

Emerging adulthood is a developmental period that is ripe for mental health issues to emerge for some people, especially amidst the lack of institutional structure previously present in adolescence (Arnett & Tanner, 2006). Contributing factors for worse mental health include a pessimistic outlook of the future, low ego development (i.e., development of agency, impulse control, and self-regulation), and a tendency to isolate (Arnett, 2000b; Arnett & Tanner, 2006). Arnett (2000b) demonstrated that emerging adults often view the world pessimistically, but they were optimistic about their own futures. They believe the future is not economically promising and the world has many societal problems such as crime and the destruction of the environment. However, young people believe they will achieve success within the difficult conditions of the world to do as well as or better than their parents (Arnett, 2000b). In reality, nearly half of students do not graduate within five years of entering college (Arnett & Tanner, 2006). Emerging adults' optimism about their own futures may contribute to them feeling invulnerable to negative consequences or to become hedonistic (Sussman & Arnett, 2014). Therefore, the authors predicate that risky behavior is often most tolerated and peaks during emerging adulthood. Risky behavior can contribute to the development of mental health issues, especially in regard to addiction-related disorders.

Emerging adulthood also is a time period where the brain continues to develop and rapidly changes (Sussman & Arnett, 2014). Researchers have found evidence of structural changes in the brains of adolescent participants who generally had more screen time via the Internet and online games. These changes included atrophy in gray matter and abnormalities in white matter such as demyelination in areas that regulate emotional behavior, planning, prioritizing, impulse control, cravings, and decision-making (Lin et

al., 2012; Weng et al., 2013; Zhou et al., 2011). This data has implications for emerging adults because their brains are continuing to develop and excessive screen time may create similar structural changes.

Emerging adulthood provides a theoretical basis for how problematic gaming can develop in college students. That is, college students are typically going through a transitional period between adolescence and young adulthood (Arnett, 2000a; Arnett, 2004; Arnett & Tanner, 2006). During this period, college students are focused on their own growth and identity exploration including what they like and dislike (Arnett, 2004). They often have fewer commitments to others, and they are more likely to spend more time alone than any other age group except the elderly (Arnett & Tanner, 2006). In addition, college students have the autonomy to spend their time in any way they choose and many students choose to spend time using media including video games (Arnett & Tanner, 2006). For example, emerging adult males often play violent video games (Arnett & Tanner, 2006), and a large portion of MMORPG players have been found to be college students (Billieux et al., 2013; Cole & Griffiths, 2007; Griffiths et al., 2004; Oggins & Sammis, 2012). Furthermore, emerging adulthood is conducive of the development of addictions because of the ease of accessibility to substances or activities, tolerance of risky behavior among emerging adults, reinforcement the behavior provides, and cultural embeddedness of messages to live like one is dying (Sussman & Arnett, 2014). Finally, emerging adults low in ego development tend not to do as well as those with high ego development (Arnett & Tanner, 2006). This difference in ego development suggests that students with low ego development and a pessimistic outlook of the future may prefer to spend time in virtual environments and have difficulties discontinuing the

behavior at the outset of young adulthood (Sussman & Arnett, 2014). This possibility would align with the notion that problematic gaming is an ineffective coping strategy for psychological distress and is used to escape environmental stresses (Hussain & Griffiths, 2008; Wood, 2008). Using online games to cope coupled with the lack of structure associated with emerging adulthood could contribute to problematic usage of online games.

Problematic Online Gaming

Problematic online gaming has gained more academic and media attention partially because of the increasing popularity of MMORPGs. Video games, in general, have become a very popular pastime. Almost all teens (97%), ages 12 to 17, play games in some fashion whether through console, computer, portable, or cell phone platforms (Lenhart, 2008). These results are consistent with the results from an unpublished study that found 87% of college students play games in some capacity (Waters, 2012). Although people play a variety of different games, MMORPGs have evidence suggesting they require more game time each week (Smyth, 2007). Smyth demonstrated this result by randomly assigning participants to play arcade games, console games, single player computer games, and MMORPGs. Participants were required to play a minimum of one hour each week but could play as long as they wanted. At the end of one month, MMORPG players reported playing for more hours each week (14.4 hours) compared to participants who played a solo computer game (6.2 hours), a console game (3.4 hours), or an arcade game (2.1 hours) suggesting that MMORPGs have a greater likelihood of interfering with players' lives depending on their individual context.

MMORPGs can provide positive outlets for some players or lead to destructive behavior for others. Kelly (2004) stated positive aspects of playing these games could include finding a partner, recognizing talents, having an antidote for shyness and disappointment, being free from limitations and disabilities, and developing a sense of control, purpose, confidence, achievement, and happiness. My own experience with a MMORPG allowed me to see some players used the game to experience aspects of life not available in their real life. For example, another player told me she enjoyed being wealthy in the game because she did not have much money in real life. Other examples may include being heroic, solving problems, and living under a different identity (Kelly, 2004). Destructive behaviors resulting from excessive MMORPG gaming include sacrificing sleep, food, and real-life interactions; being deceptive about the amount of time spent gaming; arranging one's daily schedule around the game; and preferring to be in the virtual world rather than real life (Kelly, 2004). There are no clear dividing lines of when playing the games cease to provide a positive experience and become problematic. However, when the time a person spends gaming begins to cause other aspects of the person's real life to diminish, it is likely the person is gaming problematically (Achab et al., 2011; Griffiths et al., 2004). Research has provided evidence for some factors related to problematic online gaming.

Factors Associated with Problematic Online Gaming

Research has identified multiple factors associated with problematic online gaming. These factors include demographic predictors (Willoughby, 2008), types of games (Elliott, Ream, McGinsky, & Dunlap, 2012), gamers' perceptions of characteristics associated with game addiction (Oggins & Sammis, 2012), health

outcomes (King & Delfabbro, 2009; Smyth, 2007), interference with interpersonal relationships (Hertlein & Hawkins, 2012; Smyth, 2007), interference with academic achievement (Smyth, 2007), psychological and personality characteristics (Achab et al., 2011; Caplan et al., 2009; Peters & Malesky, 2008), game-related predictors (Caplan et al., 2009), comorbidities (Bernardi & Pallanti, 2009), and motivations for playing (Billieux et al., 2013; Fang et al. 2009; Herodotou, 2010; Hertlein & Hawkins, 2012; Wan & Chiou, 2007). In addition, the relationship between flow and addiction and the ambiguous relationship between aggression and video games are examined. Finally, a study, similar to this study, is reviewed pertaining to some of the common experiences of online gamers in general.

Studies have examined potential demographic predictors of problematic game play. For example, Willoughby (2008) found the strongest predictors of more frequent game playing were being male, lower parental education, early computer game use, and poorer academic performance. In an online survey, Elliott et al. (2012) assessed how game genre and demographic variables contributed to problematic game play. Problematic game play was assessed using five of the nine items on the problem video game play scale, which used *DSM-IV-TR* criteria for substance abuse and pathological gambling. They found the game genres of MMORPGS, single-player RPGS, and first-person shooters were positively correlated with problem gaming. White participants were more attracted to role-playing and strategy games, African-American participations were more attracted to gambling and sports games, and Latino participants were more attracted to platform games (e.g., Donkey Kong or Mario Bros). It is possible these differences reflected disparate access to resources such as a computer versus a console. Examining

bivariate correlations of genre and demographic factors, Elliott et al. (2012) found Asians, Native Americans, and African-Americans were associated with higher degrees of problem gaming than Whites. However, after conducting a multivariate analysis, Asians were the only ethnic group associated with problematic game play. The authors suggested gambling games may have disproportionately represented African-Americans as playing games problematically. They did not provide explanations for the drop of Native Americans' association to problematic game play in the multivariate analysis nor why Asians continued to be associated with problematic gaming. However, the evidence suggests the potential that ethnic minority men, especially Asian men, might be at more risk of problematic game play.

The characteristics of video game addiction have been examined through researchers asking MMORPG players open-ended questions about behaviors they considered characteristic of game addiction (Oggins & Sammis, 2012). North American World of Warcraft (WoW) players ($N = 438$) were recruited through a WoW website and completed an online survey. A modified Internet Addiction Scale was used to assess video game addiction. Almost three-quarters (73%) of the participants had scores suggesting frequent problems (i.e., defined as a total scale score between 40-69) and 6% of participants had scores suggesting significant impairment (i.e., defined as a total scale score between 70-100). On average, participants used computers eight hours a day, played video games 5.5 hours a day, and played three different games. Behaviors participants considered characteristic of game addiction included salience (e.g., preoccupation, cravings; 40%), mood modification (11%), relapse (10%), withdrawal (5%), and an interference with other activities such as socializing (35%), work (20%),

and school (11%). Only 2% of participants believed that players could not become addicted to games suggesting that most MMORPG players believe players can become addicted to MMORPGs and many of these players have experienced life interference.

Health, interpersonal relationships, and academic achievement have also been examined in relation to problematic gaming. King and Delfabbro (2009) investigated the general health of heavy video game playing among Australian adults ($N = 411$) recruited from gaming retail outlets and cafes. Heavy video game playing was defined as playing for over 30 hours per week, playing for at least 4 days per week, and playing for an average duration of 3 hours in a typical sitting. The heavy video game players ($n = 45$) scored significantly lower on measures of physical functioning, mental health, vitality, general health, and social functioning as compared with normative data for Australian adults. Many players also did not meet weekly exercise guidelines and had sleep problems. In another study, Smyth (2007) randomly assigned U.S. university students ($N = 100$) to play one of four types of video games (i.e., arcade, console, solo computer play, MMORPG). Participants were asked to rate their overall health, sleep quality, academic performance, social life, and well-being at the start and end of the one month study using a Likert-type scale ranging from 0 (*very poor*) to 6 (*very good*). At the end of the study, participants also reported their enjoyment of the game, pleasure derived from playing the game, likelihood of continuing to play after the study, level of interference with real-life socializing, and degree of making new friends through the game. MMORPG players reported significantly worse overall health, worse sleep quality, greater interference with real-life socializing, and greater interference with academic achievement than the participants assigned to play the others types of games. However, they also reported

greater enjoyment and interest in the game and development of new friendships. Finally, Hertlein and Hawkins (2012) reviewed 18 articles related to online gaming and interpersonal relationships. Heavy users of online games reported lower quality interpersonal relationships as compared to non-gamers and light players. They also found that online gaming can be used to escape real life, reduce intimacy between partners, and create disagreements. The evidence suggests that problematic gaming, particularly with MMORPGs, is associated with worse mental and physical health, interference with real-life socializing and relationships, and interference with academic achievement.

Researchers have also investigated psychological and personality characteristics of MMORPG players who play at problematic levels. Achab et al. (2011) compared 448 French MMORPG players who were divided into two groups (i.e., addicted and non-addicted) as determined by adapting the substance dependence criteria in the *DSM-IV-TR* to ask about MMORPGs. They used a cutoff of three or more of the revised substance dependence criteria. Gamers who scored above the cutoff score were found to be less likely to have other leisure activities, go out, and see friends than the non-addicted players. They experienced more martial, family, work, and financial difficulties. Addicted players spent significantly more time gaming, felt a greater in-game sense of power, felt a sense of group belonging in-game, slept less, and were more irritable and sad. They reported suffering more from psychological effects due to gaming suggesting many addicted gamers have awareness of the effects gaming has on them. Finally, they were more likely to be required and pressured by their guild to spend a certain amount of time gaming.

Peters and Malesky (2008) investigated how the five-factor personality model (i.e., openness, conscientiousness, extroversion, agreeableness, and neuroticism) related to problematic gaming. World of Warcraft players (N = 196) were recruited via the Internet to participate in the survey. Problematic gaming was determined by conducting a factor analysis on the 27-item Problematic Usage-Engagement Questionnaire, which extracted one factor for problematic usage. Sample items included "I try to make my World of Warcraft play sessions last as long as possible"; "I think that I am addicted to World of Warcraft"; and "It would not matter to me if I never played World of Warcraft again." Participants were also administered an adapted version of the NEO Personality Inventory. A correlational analysis was then conducted to compare participants' problematic usage scores with the five factors, which resulted in four significant correlations. Agreeableness had a moderate negative correlation (r = -0.304), neuroticism had a moderate positive correlation (r = 0.381), extroversion had a low negative correlation (r = -0.235), and conscientiousness had a low negative correlation (r = -0.289). These results suggest that MMORPG players playing at problematic levels are more likely to experience fewer alternative activities and greater life interference. They likely have less real-life socialization supporting the evidence for the inverse relationship with agreeableness and problematic play. They also likely feel more irritable and sad supporting evidence for the positive relationship with neuroticism.

Other studies have investigated problematic gaming through the lens of Problematic Internet Use (PIU), which can be defined as compulsive use of the Internet leading to serious psychosocial and professional problems (Meerkerk et al., 2006). These two concepts overlap because online gaming is one of the strongest predictors of

excessive use of the Internet (Meerkerk et al., 2006). Caplan et al. (2009) examined PIU among MMORPG players (N = 4,278) and investigated what aspects of MMORPGs predicted PIU after controlling for age, gender, Internet use, and psychosocial well-being via an online survey. At Step 1 of their hierarchical regression, Internet use, age, and sex accounted for 14% of the variance. At Step 2, psychosocial well-being (i.e., loneliness, introversion, depression, substance addiction, behavioral addiction, and physical and verbal aggression) was entered into the model and accounted for an additional 22% of the variance. At Step 3, game-related variables were entered and accounted for a statistically significant additional 2% of the variance. The statistically significant game-related variables included a motivation to be immersed in the game, using voice-over-Internet technology, and time spent playing the game. These results suggest particular psychosocial variables are associated with PIU among MMORPG players, and MMORPG game-related variables are predictive of PIU.

MMORPGs are predictive of PIU suggesting problematic online gaming and problematic internet use are related. Therefore, results related to PIU are likely also related to problematic online gaming. One study investigated comorbidities and dissociative symptoms in PIU (Bernardi & Pallanti, 2009). The researchers screened 50 adult outpatients with the Internet Addiction Scale and provided a structured clinical interview for the 15 participants who attained a severity test score of at least 60. The participants were also given the Dissociative Experience Scale, Clinical Global Impression Scale, Sheehan Disability Scale (i.e., disability in work, family life, social activities), and additional measures for depression, anxiety, obsessive-compulsive symptoms, and ADHD. The clinical diagnoses given included generalized anxiety

disorder (15%), borderline personality disorder (14%), ADHD (14%), hypomania (7%), binge-eating (7%), social anxiety disorder (7%), dysthymia (7%), obsessive compulsive personality disorder (7%), and avoidant personality disorder (7%). Higher scores on the Internet Addiction Scale were associated with a higher perception of disability in family life and higher obsessive compulsive scores. In addition, higher scores on the Dissociative Experience Scale were related to higher obsessive compulsive scores, hours per week on Internet, and perception of family disability.

In another study, Douglas et al. (2008) conducted a qualitative meta-synthesis on 10 articles on PIU. They found themes associated with Internet experience such as years of Internet use and time spent online and themes of social factors such as loneliness, isolation, and boredom to be antecedents of PIU. Symptoms included excessive time spent online, denial of problem, and moodiness and irritation while offline. In addition, negative effects occurred in five areas: scholastic, occupational, interpersonal, financial, and physical. These data suggest additional evidence of psychosocial antecedents to PIU and life interference resulting from PIU.

A number of studies have investigated the various motivations MMORPG players have for playing, particularly in terms of motivations associated with problematic gaming. Three broad categories of players' motivation have emerged from the literature: social interaction, achievement, and immersion (Fang et al., 2009; Hertlein & Hawkins, 2012; Yee, 2014). According to Yee (2014), social interaction motivation refers to different ways of relating to other players in the game. Achievement motivation refers to various ways the players gain power in the game. Finally, immersion motivation is about ways of becoming a part of the story. Fang et al. (2009) found evidence for these broad

categories from developing a decision tree with 33 undergraduate Taiwanese students who were faced with the choice of playing an MMORPG. Participants frequently mentioned their decisions to play included killing time, whether friends or family recommended the game, the visual appeal of the game, whether friends or family invited the participant to play, and the ease of control in the game. In another study, Herodotou (2010) surveyed North American and European participants (N = 1,051) who had reached the maximum level in World of Warcraft. The author found a positive correlation between the immersion and social factors and between the immersion and achievement factors suggesting players with socially or achievement-oriented motivations also identify an immersion preference. In addition, competition was negatively related with teamwork and socializing suggesting the more competitive a player is, the less interest he or she has in teamwork and socializing.

Another study divided motivations into competition-oriented motives and cooperative-oriented motives in MMORPGs. French-speaking World of Warcraft players (N = 690) completed an online survey about their motives and agreed to have their avatar monitored for eight months (Billieux et al., 2013). The researchers found that motivations for teamwork and discovery (e.g., quests and exploration), affiliation to a guild, and weekly hours predicted progression related to cooperative achievements. Competition-oriented motives were predicted by motivations to fight and compete with other players and by younger age.

A final division of motivations in the literature is intrinsic and extrinsic motivations. Intrinsic and extrinsic motivations were examined in Taiwanese adolescents (N = 416) playing MMORPGs (Wan & Chiou, 2007). Intrinsic motivation refers to an

internal state of enjoyment and extrinsic motivation refers to external rewards and punishments. Examples of intrinsic motivators include curiosity, exploration, a sense of belonging, autonomy, competency, and goals. Extrinsic motivators include praise from others, money, and gifts. Adolescents found to be addicted to online games had significantly higher intrinsic motivation for playing and the non-addicted group had significantly higher extrinsic motivation (Wan & Chiou, 2007). Addiction in this study was determined through administering a modified version of The Internet Addiction Scale for high school students in Taiwan. Participants were assessed on factors such as compulsive use; withdrawal; tolerance; problems related to family, school, and health; and problems related to peer interaction and finances. Participants who scored at the 80th percentile or above were considered addicted.

Tying the research on motivations related to problematic gaming together, problematic gaming is associated with cooperative achievement, advancement, and escapism (i.e., playing to be immersed in the virtual world rather than reach a specific objective) motives (Billieux et al., 2013; Hertlein & Hawkins, 2012). Gamers more interested in social interactions had a higher interest in escapism (Herodotou, 2010). In short, social interaction, achievement, and immersion motives are associated with problematic gaming. These motivations for playing can be subsumed under intrinsic motivation, which is also related to problematic gaming (Wan & Chiou, 2007).

Time loss or flow. Intrinsic motivation is heavily related to the concepts of time loss and flow (Csikszentmihalyi, 2014). Time loss and flow overlap but they possess different implications in the literature. Time loss is described as having positive and negative effects (Wood, Griffiths, & Parke, 2007) and the negative effects are sometimes

described as a loss of control such as playing for longer than intended (Hussain & Griffiths, 2009). Flow is described as the optimal experience (Csikszentmihalyi, 2014), which possesses a very positive tone compared to time loss. One study investigated time loss using quantitative and qualitative data to shed light on the concept.

Time loss has been primarily investigated in regard to an altered sense of time. Wood et al. (2007) investigated time loss among mostly U.K. and U.S. gamers ($N = 280$). They found evidence for time loss in gamers regardless of gender, age, or frequency of play. Almost all participants (99%) reported they had experienced time loss of which 49% experienced it frequently, 33% experienced it all the time, and 17% experienced it occasionally. Two-thirds of the participants reported most frequently losing track of time in the evening or into the early hours of the morning. The authors found correlational evidence that time loss was associated with certain game features that can absorb players' attention to the extent of altering their perception of time. These game features included complexity, immersiveness, excitement, stimulation, compelling goals, interactions with other players, and plot-driven stories. They also described time loss as having both positive and negative outcomes. Participants reported time loss was a positive experience when it allowed them to relax, temporarily escape stressors, and become absorbed by the game enough to enjoy themselves. Participants reported time loss was a negative experience when they missed or sacrificed other things (e.g., appointments, sleep), felt guilty about playing a game rather than spending time on other things, and experienced conflicts with others who felt neglected because of their gaming. Half of the participants reported using strategies to avoid time loss such as keeping a clock, watch, or phone in view; setting an alarm; having someone remind them of the time; setting game goals to

achieve and then stopping; using physical reminders such as hunger; listening to the radio; and taking regular breaks. However, some participants reported that losing track of time was the experience they sought by playing the game, which may be an indication of flow.

Flow is a subjective state people experience when they are completely involved in an activity to the degree of forgetting everything (e.g., fatigue, time) except for the activity itself (Csikszentmihalyi, 2014). It is an intense, present-focused involvement in an activity. It is something people often feel while reading a good book or engaging in a stimulating conversation. Other characteristics involved in flow include the merging of action and awareness (i.e., self is no longer perceived as separate from activity), a loss of self-consciousness, a sense of control (i.e., lack of anxiety about losing control), an altered sense of time (i.e., experience of time passing quickly), and an intrinsically rewarding experience. Csikszentmihalyi (2014) also describes three conditions necessary to experience flow in an activity: clear goals to add direction to the activity, balance between perceived challenges and perceived skills, and clear and immediate feedback to inform the person how well he or she is progressing in the activity. Time loss may be a concept only focusing on one aspect of flow. However, the prevalence of time loss (99%; Wood et al., 2007) may suggest that flow is a large part of why people play video games.

Gamers may experience flow while playing because game design has incorporated many of the characteristics necessary to achieve flow (Murphy, 2011). For example, games attempt to balance the difficulty of the game with player skill by providing an adjustable difficulty or allowing the player to repeat challenges after failing. In MMORPGs, the player's behavior is shaped from the beginning of the game (Yee,

2014), allowing the player's skill to improve as he or she develops his or her avatar. MMORPGs also become progressively more challenging to maintain that balance. The other characteristics necessary to achieve flow are clear goals and the use of immediate feedback. Games are predicated on the notion that someone will play to achieve the objectives of the game. Although goals are provided to the player in games, the player can also make clear, personal goals. Feedback is often present in games through a scoring system or a way of tracking progress toward a goal (Murphy, 2011). In MMORPGs, players usually have clear goals such as to kill 10 goblins. Feedback is often presented with immediate numerical feedback in battle to inform the player of his or her performance and progress in defeating the foe. In addition, goals such as quests have their progress easily tracked.

Because a core aspect of flow is that it is an enjoyable experience and the necessary conditions for flow have been incorporated into the design of games, flow possesses a relationship with addiction. Khang, Kim, and Kim (2013) explained video game flow is in a stage prior to addiction and can be seen as healthy with a clear sense of purpose. However, video game addiction is a negative state that lacks any particular goal. Csikszentmihalyi (1990) pointed out that flow experiences can become addictive because the self can become restrained by a desire for a particular kind of order and become unwilling to cope with life's ambiguities. In addition, Csikszentmihalyi (2014) described that the optimal experience is intrinsically rewarding and might become addictive with time. In other words, it appears flow may be a necessary condition prior to video games becoming addictive (Khang et al., 2013). A person must experience playing the game simply for the enjoyment of playing. In addition, the immersive experience can help a

person forget about everything but the game including self-consciousness and anxiety related to a lack of control. This combination may cue a person to attempt to continuously experience flow in the game, which becomes problematic once the person begins to experience negative consequences. Negative consequences resulting from flow may be more common than what Csikszentmihalyi acknowledges if half of the participants from Wood et al. (2007) reported using strategies to avoid achieving or to break their flow.

Aggression and video games. The relationship between aggression and video games appears to be the most popular and researched topic related to gaming. The question of whether video games contribute to aggressive behavior has been a long standing question that was ignited again in the wake of the Newtown, Connecticut shooting. There are two conflicting theories surrounding video game violence. One is that exposure to video game violence increases violent tendencies through desensitization (Bowen & Spaniol, 2011; Funk, Baldacci, Pasold, & Baumgardner, 2004). The other is that video game violence is unrelated to aggressive behavior or may even decrease aggressive behavior (Ferguson & Rueda, 2010), perhaps through a cathartic release. Furthermore, there are very few studies that have examined the relationship between excessive play and violence, although some evidence supports a link. Fling, Smith, Rodriguez, Thornton, Atkins, and Nixon (1992) found the amount of videogame play correlated with aggression among 153 sixth through twelfth grade U.S. students. Grusser, Thalemann, and Griffiths (2007) also found significant differences between problematic gamers and non-problematic gamers in aggressive behavior, although the effect size was small (.14). The question of whether violent video games are associated with aggression is a complicated issue, and the research is equivocal.

The theory of desensitization has been tested with mixed results. Bowen and Spaniol (2011) investigated the effects exposure to violent video games had on the emotional long-term memory of college students ($N = 134$). Participants looked at 300 images of positive, negative, and neutral stimuli and later indicated which images they had seen previously. The authors theorized that gamers would show reduced memory for negative stimuli due to desensitization compared to non-gamers. However, the researchers found no difference between gamers and non-gamers in their ability to recall violent pictures and both groups reported similar levels of physical arousal and feelings suggesting that long-term memory may be unaffected by chronic exposure to violence in video games. Conflicting evidence exists as a result of when Funk et al. (2004) investigated the relationship between real-life violence, exposure to media violence, and desensitization. Elementary students ($N = 150$) completed measures of real-life exposure to violence, media exposure to violence, empathy, and attitudes towards violence. Regression analyses revealed exposure to video game violence was associated with lower empathy and stronger pro-violence attitudes suggesting violence in games had desensitized the participants.

There is also equivocal evidence regarding the link between video game violence and aggressive behavior. Some evidence suggests that video games may reduce (Ferguson & Rueda, 2010) or be unrelated to aggression (Ferguson, Rueda, Cruz, Ferguson, Fritz, & Smith, 2008). Ferguson and Rueda (2010) randomly divided Hispanic adults ($N = 103$) into four groups: no video game, non-violent game, violent game playing the good guy, and violent game playing the bad guy. Participants then engaged in a frustration task. They found that violent content had no impact on aggressive behavior

and that the control group that did not play a game was the most aggressive group. In a follow-up analyses, the authors conducted a hierarchical multiple regression and found that exposure to violent video games in participants' personal lives was a significant predictor of reduced feelings of hostility and depression following the frustration task. Another investigation involving two studies examined the effects of playing violent video games on college students (Ferguson et al., 2008). In the first study, participants (N = 101), aged 18 to 40, were randomly assigned to play a violent or nonviolent video game or randomly assigned to a third condition providing the participant with a choice of which game to play. The participants played the assigned or chosen game for 45 minutes before playing a reaction time game where noise blasts can be delivered as punishment to their fictional opponent. The noise blasts served as a measure of aggression because participants could set the volume and duration of the blasts. They found men were more aggressive than women, but exposure to violent games did not lead to any differences in aggression. In the second study, participants (N = 428) took measures that allowed the researchers to examine the relationship between family violence, trait aggression, video game playing, and violent crime. Trait aggression, family violence, and being male were predictors of violent crime whereas exposure to video game violence was not.

Alternatively, there is evidence supporting a link between video game violence and aggression. For example, Irwin and Gross (1995) examined the relationship between video game violence and interpersonal aggression and aggression toward inanimate objects among second grade students (N = 60). Physical and verbal aggression was observed and rated during free-play and a frustrating situation (i.e., a coloring contest in which the confederate receives a head start). Participants who played a violent video

game showed more object aggression during free-play and more interpersonal aggression during the frustrating task than participants who played the nonviolent game. Gentile, Lynch, Linder, and Walsh (2004) examined the relationships among violent video game exposure, arguments with teachers, fighting, hostility, and grades. Students in 8th and 9th grade ($N = 607$) completed a survey. Adolescents who had greater exposure to video game violence had increased hostility, more arguments with teachers, were more likely to get into a physical fight, and had poorer school performance compared to adolescents with little or no exposure to video game violence. Krahe and Moller (2004) administered a survey to 231 8th grade German adolescents regarding their preference for violent games, aggressive norms, and hostile attribution style. They found a positive relationship between participants' attraction to violent video games and acceptance of aggressive norms.

Although a consistent finding among studies is that young children, as opposed to teenagers or older, tend to become more aggressive after playing or watching violent video games (Griffiths, 1999), some data suggest that video games can increase aggression among college students as well. Ballard and Wiest (1996) examined hostility and cardiovascular reactivity (e.g., heart rate and blood pressure) among 30 male undergraduates. The participants either played a billiards game or Mortal Kombat. Mortal Kombat was divided into two conditions: one without the blood being displayed and one with blood displayed. They found participants who played Mortal Kombat with blood had the highest cardiovascular reactivity and hostility scores followed by participants who played Mortal Kombat without blood and finally, participants who played the billiards game had the lowest reactivity and hostility scores. Anderson and Dill (2000)

conducted two studies to investigate the relationship between video game violence and aggression. In the first study, 227 introductory psychology undergraduates participated. The authors used a correlational design to examine the relationship between long-term video game violence exposure and aggressive behavior, delinquency, academic achievement, world view, trait aggression, and irritability. They found that violent video game play was positively correlated with aggressive and nonaggressive delinquent behavior and with trait aggression. Time spent playing games was also positively related to delinquent behaviors and negatively correlated with academic achievement. In the second study, researchers examined 210 introductory psychology undergraduates on the effects violent video games had on aggressive thought, affect, and behavior. Participants played their assigned game three times, 15 minutes each time, across two visits to the laboratory and took measures immediately following play. To measure aggressive behavior, participants engaged in a competitive reaction time task where they had to push a button faster than their opponent and the loser received a noise blast. The outcomes were predetermined. The authors found that violent video game exposure primed aggressive thoughts. Women, highly irritable participants, and participants who played the violent video game delivered longer noise blasts to their opponents providing some evidence that playing violent video games increases aggressive behavior.

Longitudinal research investigating the long-term effects of violent video game exposure is also mixed. For example, a longitudinal study examined the effects of exposure to violent video games on adolescent aggression and dating violence (Ferguson, Miguel, Garza, & Jerabeck, 2012). The Hispanic youth ($N = 165$), aged 10 to 14 at the start of the study, were tested at three intervals over a three-year period on exposure to

video game violence, antisocial personality traits, family attachment, exposure to domestic violence, depression, and dating violence. Exposure to video game violence was not related to youth aggression, but antisocial personality traits, family violence, and peer influences were the best predictors of aggression. Wallenius and Punamaki (2008) found contrary evidence when they examined the link between game violence and aggression moderated by sex, age, and parent-child communication in a two-year longitudinal study. Finnish adolescents ($N = 316$) completed measures at time 1 and time 2. The researchers found that game violence was associated with aggression longitudinally and was moderated by parent-child communication. They concluded poor parent-child communication in general may strengthen the effects of game violence.

Another theory that emerged in the literature was that competition increased aggression rather than video game violence. In a study supporting the theory, researchers asked Canadian college students ($N = 42$) to play competitive violent and nonviolent games and measured aggressive behavior via the hot sauce paradigm (i.e., how hot the sauce is and how much is given; Adachi & Willoughby, 2011). The researchers found that video game violence did not elevate aggressive behavior but competition in the games increased aggressive behavior in the short-term suggesting that competition may be a better predictor of aggressive behavior. However, contradictory evidence was found when Carnagey and Anderson (2005) conducted a series of three experiments and found competition alone did not increase aggression. They examined the effects that punishing and rewarding violent behavior in video games had on cognition, affect, and behavior. In all three studies, participants played the same competitive race-car game under three conditions: a version that rewarded killing pedestrians and opponents, a version that

punished killing, and a version where killing was not possible. In experiment one, 75 undergraduates played their assigned game for 20 minutes while wearing a blood pressure cuff and took a hostility scale afterward. Each version was equally arousing, and participants playing either of the violent conditions reported more hostile affect than participants playing the nonviolent version of the game. In the second study, 66 participants followed the same procedures except they completed a word completion task. Participants who played the game that rewarded violent behavior exhibited higher aggressive cognitions than participants in the other two conditions. In the third experiment, 141 participants wrote an essay, played a video game for 20 minutes, received very critical feedback on their essay, and finally completed a competitive reaction time task (i.e., press the mouse button faster than the opponent). They were told they were competing with the person who provided negative feedback on their essay. The loser received a noise blast. They found participants who played the rewarding condition of the game were more aggressive than participants in either of the other conditions suggesting rewarding violent video game behavior increases aggression.

Consistent with the findings thus far, different authors have come to divergent conclusions after analyzing the literature. Dill and Dill (1998) conducted a literature review examining the relationship between video game violence and aggression. They found the preponderance of the evidence suggested that violent video game exposure increases aggressive behavior. However, there was a scarcity of data and methodological problems that merited additional research. In their meta-analysis, Ferguson and Kilburn (2009) investigated the impact media violence exposure, including video games, has on aggressive behavior and reached the opposite conclusion. Their analysis indicated that

many studies had methodological problems such as poor aggression measures and inflated effect sizes. After correcting the overall effect size (i.e., .08), the authors concluded there was little support for the hypothesis that increased exposure to violent media increases aggressive behavior.

A final area of controversy in the video game violence literature involves the influence video game violence has on civic engagement and prosocial behavior. Ferguson and Garza (2011) investigated the relationship between video game violence and civic engagement (e.g., giving to charity, community service) and online prosocial behavior in teens ($N = 873$). They found that exposure to violence in the video games predicted more prosocial online behavior, possibly due to team-oriented multiplayer options. Teens' level of civic engagement was related to parental involvement rather than exposure to video game violence. That is, youths who played action games and whose parents were involved in gameplay were most civically involved compared to youths who did not play action games or youths who had less parental involvement in gameplay. Sheese and Graziano (2005) found a decrease in prosocial behavior in participants exposed to violent video games. They randomly assigned participants ($N = 48$) to play a violent or nonviolent game with another person. Following the game, they were given an opportunity to cooperate with their partner for mutual gain, withdraw from interacting with their partners, or exploit their partners. They found that participants who played the violent video game were more likely to exploit their partners than participants who played the nonviolent game. This study suggests violence in video games undermines prosocial behavior.

In summary, the research investigating the link between violent video games and aggression is mixed. Research has found evidence that supports the theory of desensitization (Funk et al., 2004) and evidence to refute the theory (Bowen & Spaniol, 2011). Furthermore, studies that investigated a direct link between violent video game exposure and aggression have come to contradictory conclusions. Much evidence suggests a link (Anderson & Dill, 2000; Ballard & Wiest, 1996; Gentile et al., 2004; Irwin & Gross, 1995; Krahe & Moller, 2004; Wallenius & Punamaki, 2008) while other evidence suggests no relationship exists (Ferguson et al., 2008; Ferguson et al., 2012; Ferguson & Rueda, 2010). Equivocal evidence was also found for the theory that competition, rather than violent video games, increases aggression (Adachi & Willoughby, 2011; Carnagey & Anderson), from analyzing the literature (Dill & Dill, 1998; Ferguson & Kilburn, 2009), and for the effects game violence has on prosocial behavior (Feruson & Garza, 2011; Sheese & Graziano, 2005). Although a final answer cannot be given in this review, there is some evidence that supports a link between excessive play and aggression. However, the relationship between excessive gaming and aggressive behavior is not well understood and is worth further exploration from gamers' perspectives.

Common experiences of online gamers. One qualitative study was similar to this study and investigated some of the common experiences of MMORPG players. In the study, Hussain and Griffiths (2009) investigated the feelings and experiences of the day-to-day gaming behavior of MMORPG players. The authors recruited 71 MMORPG players from 11 different countries through gaming forums and in-game posts in World of Warcraft and interviewed them via MSN Messenger or email. Participants were

categorized into three types of gamers based on the number of hours they played each week: casual (15 hours or less; *n* = 39), regular (15 – 30 hours; *n* = 21), and excessive (greater than 30 hours; *n* = 12). The interviews resulted with six main themes. The first theme involved "online gaming and integration into day-to-day lives." Many gamers integrated online gaming into their lives with few adverse social effects. They played during free time, played with friends, played during work hours, and played with romantic partners. The second theme involved "online gaming, excessive play, and problems." Twenty-seven participants reported playing excessively and had high awareness of their excessive play. The virtual world served as a place to waste time, and raiding, leveling up, and belonging to a guild were factors in excessive play. The third theme was "addiction." Fourteen players viewed MMORPGs as potentially addictive with the primary addictive factors being social interaction, competition, and in-game tasks. The fourth theme was the "psychosocial impact of online gaming." Gaming had a positive impact by allowing players to learn skills, meet new people, and build relationships. Gaming had a negative impact on gamers through a loss of real life friends, an avoidance of self-care, and quitting school. The fifth theme was "online gaming, dissociation, and time loss." Twenty-two participants experienced detachment from real life and 25 participants experienced time loss and played longer than intended. The final theme was "online gaming and the alleviation of negative feelings and mood states." Twenty-two participants reported playing MMORPGs to remove negative feelings such as stress, anger, and frustration. Although this study is highly informative, it is not very clear how these themes are differentiated among the gamers. The authors conducted unstructured, text-based interviews on 71 gamers whose play time ranged from casual

play to excessive play based solely on hours played. However, the classification of participants (i.e., casual, regular, excessive) appears to lack meaning because the themes that emerged utilized data across all 71 participants. The unstructured nature of the interviews also resulted in only a portion of the sample attesting to any particular theme because not all participants were asked questions pertaining to each theme. Therefore, it is not clear whether certain themes were associated with problematic gaming and it seems likely the results were reflective of gamers in general.

Theoretical Paradigm

Problematic gaming falls under the theoretical paradigm of social constructivism. Creswell (2012) defines social constructivism as a worldview in which people attempt to understand their world by developing subjective meanings that were formed through norms and their interactions with others. The concept that overindulgence in gaming can be problematic is largely dictated by cultural norms and is not something that is inherent in every culture. For example, Chee (2006) proposed that increased levels of gaming in Korea were due to social pressure to game well, which can increase one's social acceptance among peers. However, if a player does not play well, he or she may be ostracized suggesting the importance of Korean cultural norms. Therefore, regardless if gaming is being viewed as problematic by the player or by others in society, the concept of problematic gaming is socially constructed. At the same time, I also maintain a post-positivist view to encompass the possibility that individual differences exist in peoples' susceptibility to game at problematic levels and that particular environments may increase the likelihood of problematic gaming. In other words, there may be particular characteristics of a person or his or her situation that increase the likelihood of the person

gaming at problematic levels. An approach that will allow both of these theoretical paradigms to be considered is consensual qualitative research (CQR; Ponterotto, 2005; Stahl, Taylor, & Hill, 2011). That is, CQR emphasizes participants' lived experiences and provides them with a voice. However, it also emphasizes using multiple researchers to reach agreement when analyzing the data to approach one truth that best represents the data. Therefore, this study will fill in the gaps in the literature specifically by providing a deeper understanding of the experiences of problematic MMORPG players using CQR.

Summary and Research Questions

MMORPGs have been the natural progression of fantasy games that emerged from improving technology. These games are appealing for a number of reasons including the social environment, reward systems, consistent and measurable progress, and derived benefits from gaming (Griffiths et al., 2004; Jansz & Tanis, 2007; Kelly, 2004; Primack et al., 2012; Russoniello et al., 2011). However, MMORPGs are associated with increased play time each week compared to other types of games (Smyth, 2007) and have been associated with various problems (Billieux et al., 2013; Hertlein & Hawkins, 2012; Hussain & Griffiths, 2009; King & Delfabbro, 2009; Oggins & Sammis, 2012). Although there has been a debate on the appropriateness of classifying problematic gaming as an addiction (Lemmens et al., 2009), more researchers are accepting the idea of Internet Gaming Disorder (Ashley & Boehlke, 2012). Most MMORPG players are emerging adult men (Billieux et al., 2013; Griffiths et al., 2004; Oggins & Sammis, 2012), and a large portion of players are college students (Billieux et al., 2013; Cole & Griffiths, 2007; Griffiths et al., 2004; Oggins & Sammis, 2012). Therefore, I focus on college students because they are representative of gamers, and they

are in a transitional and significant developmental time period. As can be seen with the number of quantitative studies reviewed earlier, many researchers approach problematic gaming using adapted criteria of substance dependence and pathological gambling. Only one qualitative study was similar to this study and investigated experiences surrounding day-to-day gaming behavior of MMORPG players, but it is unclear if particular themes were associated with problematic gaming because the study investigated gamers in general. Therefore, the study is more reflective of gamers in general rather than providing a thick description of the experiences of problematic online gamers. As such, no research has used a qualitative approach to examine the common experiences among potential problematic online gamers or contribute to defining problematic gaming. Specifically, building an understanding from data provided from gamers via interviews allows an important source of information to be introduced into the literature. This source of information will contribute to our developing understanding of problematic gaming.

There are two central research questions in this study: what is problematic gaming among college students and what are the common experiences of potentially problematic online gamers in college? The following are the primary subquestions (see appendix I for a full list of interview questions) to help address the second central question: (a) how did participants become involved in online gaming?, (b) what game-related activities did participants commonly engage in?, (c) what function did online gaming play in participants' lives?, (d) how did participants define problematic gaming?, (e) what mental health issues did participants report experiencing?, (f) what effects did online gaming have on participants' lives?, and (g) what was the role of aggression in participants' game play?

CHAPTER III METHOD

This chapter provides a description of the participants, means of recruitment, measures, procedures for collecting data, and procedures for analyzing the data. The purpose of the study was to explore the experiences of problematic online gamers. The methodology listed in this chapter establishes the trustworthiness of the data.

The current understanding of problematic gaming is based primarily on adapting other addiction-related phenomena and applying those concepts to problematic gaming. This approach leaves the potential for essential components to be left unexamined whereas qualitative data can identify these components. For example, open-ended responses from gamers helped illuminate the phenomenon of time loss (i.e., gamers lose track of large periods of time and believe only a short period of time has elapsed), psychosocial impacts of online gaming, and descriptions of how gamers integrated gaming into day-to-day lives (Hussain & Griffiths, 2009; Wood, Griffiths, & Parke, 2007). Therefore, qualitative research can fill in any missing gaps in the literature by allowing participants to describe their experiences rather than the researcher assuming gamers have particular experiences.

In this study, consensual qualitative research (CQR) was used, as outlined by Hill, Thompson, and Williams (1997) and updated by Hill, Thompson, Hess, Knox, Williams,

and Ladany (2005), to address the proposed research questions. This method uses open-ended questions to gather data, words to describe phenomena, a few cases to study intensively, an inductive analytic process, a team to reach consensus about the data, and auditors to check the team's work (Hill et al., 1997). In addition, CQR highlights aspects of traditional qualitative research which include describing how a phenomenon came to be, how the phenomenon currently manifests itself, drawing conclusions based on the data, and understanding the phenomenon from the participants' perspective (Creswell, 2012). CQR was selected to study the phenomenon of problematic gaming, because it minimizes researcher bias through the consensus process and allows the data to drive the conclusions. CQR also incorporates aspects of social constructivism and postpositivism (Ponterotto, 2005), which are both essential paradigms underlying this study. That is, CQR allows commonalities to be found across participants while maintaining that each participant's experiences will be contingent upon their context. Three primary steps were used to analyze the data: developing domains, constructing core ideas, and developing categories to describe consistencies across cases (Hill et al., 1997). The strengths of CQR make it well-suited to investigate the phenomenon of problematic gaming.

Participants

Recruitment

There were two different recruitment phases. First, I contacted the registrar to randomly send 4,000 students a recruitment email (see Appendix B). Although anyone who received the email could take the survey, the email specifically recruited for current undergraduate or graduate students, aged 18 to 29, who played a massively multiplayer online role-playing game (MMORPG). The email contained a link to direct interested

participants to a website to ask a few brief demographic questions (see Appendix H) and administer the short version of the Game Addiction Scale (GAS; Lemmens et al., 2009) to screen participants for problematic gaming (see Appendix E). The GAS is consistent with the criteria for Internet Gaming Disorder. Participants who affirmatively answered four of the seven questions were more likely to game at problematic levels (i.e., meet criteria such as preoccupation, loss of control, continued use despite negative consequences; Lemmens et al., 2009). In addition, the screening survey requested the name of the MMORPG(s) participants played and the total number of hours they spend on game-related activities each week on average. I used the supposition that a person playing online games 20 or more hours each week has a higher chance of gaming at problematic levels. Therefore, participants must have played a minimum of 20 hours a week (based on average play times in the literature; Billieux et al., 2013; Cole & Griffiths, 2007; Griffiths et al., 2004; Hussain & Griffiths, 2008; Hussain & Griffiths, 2009; King & Delfabbro, 2009). Finally, the survey asked participants if they wanted to participate in the interview. If they selected yes, they were asked to provide their first name and an email address or phone number. This screening process allowed a database of eligible participants to be built based on student status, age, genre of game played, hours played each week, and score on the GAS. Following the screening process, 21 participants were eligible for the second recruitment phase.

The second recruitment phase involved randomly selecting 10 participants from the database of 21 eligible participants. I contacted selected participants and provided more details via a consent form (see Appendix C). Participants whom I interviewed in person were required to sign the consent form prior to the interview (see Appendix F).

Participants whom I interviewed via Skype received a digital copy of the consent form (see Appendix G) and were required to give verbal assent before the interview began; however, written consent was not required. I randomly selected participants until 10 participants agreed to participate. In all, I contacted or attempted to contact 19 of the 21 participants before obtaining 10 participants. The participants interviewed were likely representative of problematic gamers at the university because random sampling was used to select the interviewees from the database. However, the generalizability of the data to gamers in general or to problematic gamers at other institutions is limited because a non-representative, purposive sample was used.

Participants from Screening Survey

There were 131 participants who completed the screening survey. However, one participant was below the age of 18 and had to be excluded. Of the 130 participants who responded, 102 (78.5%) were men and 28 (21.5%) were woman. The age of the participants ranged from 18 to 26 with a mean age of 20.89 years. Their racial and ethnic background consisted of 83 (63.9%) White/Caucasian, 34 (26.2%) Asian/Asian American, 7 (5.3%) Black/African American, 3 (2.3%) multi-ethnic, 2 (1.5%) Latino/Latina, and 1 (.8%) Native American/Alaskan Native. Most participants were either single (n = 78) or partnered (n = 49). The vast majority reported to be heterosexual (n = 121) and most of the students were in their third (n = 34) or fourth (n = 47) year of college. The largest represented colleges were engineering (n = 40), technology (n = 22), liberal arts (n = 21), and science (n = 21). More details on the demographic characteristics of the participants who completed the screening survey can be found below in Table 2.

Table 2

Demographic Data for Participants in the Screening Survey

Demographic Variable	*n*	(%)
Sex		
Women	28	21.5
Men	102	78.5
Relationship Status		
Single	78	60.0
Partnered	49	37.7
Married	3	2.3
Sexual Orientation		
Heterosexual	121	93.1
Gay	2	1.5
Bisexual	5	3.8
Queer	1	.8
Other	1	.8
Year in College		
First Year	10	7.7
Second Year	20	15.4
Third Year	34	26.2
Fourth Year	47	36.1
Fifth Year or More	18	13.8
Graduate School	1	.8
Race/Ethnicity		
Asian/Asian American	34	26.2
Black/African-American	7	5.3
White/Caucasian	83	63.9
Latino/Latina	2	1.5
Native American/Alaskan Native	1	.8
Multi-ethnic/Other	3	2.3
International Student		
Yes	23	17.7
No	107	82.3
College		
Agriculture	3	2.3
Education	1	.8
Engineering	40	30.8
Health and Human Sciences	14	10.7
Liberal Arts	21	16.2
Management	7	5.3
Science	21	16.2
Technology	22	16.9
Veterinary Medicine	1	.8

Table 2 continued.

Play with Real Life Friends		
Yes	93	71.5
No, but I have in the past	24	18.5
No	13	10.0
Mean Age (years)	20.89	N/A
Age Range (years)	18-26	N/A

Interviewees

I used purposive sampling to find participants who have shared the phenomenon and displayed characteristics of problematic gaming. I obtained a criterion sample (Creswell, 2012) of 10 participants to fall within the proposed recommendation to obtain between 8 and 15 participants for CQR (Hill, et al., 1997). Creswell (2012) states that the more diverse the individuals, the more difficult it becomes to find common themes. Therefore, a homogeneous set (i.e., college students from a single university who play a particular type of game at an above average frequency) of cases was obtained to provide an accurate representation of problematic gaming. A sample of college students was recruited from a large Midwestern public university who primarily played a massively multiplayer online role playing game (MMORPG), because 20% to 46.7% of players have been found to be students (Cole & Griffiths, 2007; Griffiths et al., 2004). This data suggest college students make up a large portion of online gamers.

The participants (N = 10) were 9 (90%) men and 1 (10%) woman who were randomly selected after the screening process. Their ages ranged from 19 to 22 (M = 20.7; SD = 1.06). Their racial and ethnic background consisted of 6 (60%) White/Caucasian, 3 (30%) Asian/Asian American, and 1 (10%) Latino/Latina.

Participants' marital status was 5 (50%) partnered, 4 (40%) single, 1 (10%) married, and 0 divorced, separated, or widowed. Participants were in their third (n = 5), fourth (n = 4), or fifth (n = 1) year of college. Half of the participants played with real-life friends, four used to play with real-life friends, and the White, female participant played the game alone. Engineering was the most represented college (n = 6), followed by liberal arts (n = 2), technology (n = 1), and science (n = 1). See Table 3 for more information.

Table 3

Demographic Data for Interviewees

Demographic Variable	*n*	(%)
Relationship Status		
Single	4	40
Partnered	5	50
Married	1	10
Separated/Divorced/Widowed	0	0
Sex		
Women	1	10
Men	9	90
Sexual Orientation		
Heterosexual	9	90
Bisexual	1	10
Year in College		
First Year	0	0
Second Year	0	0
Third Year	5	50
Fourth Year	4	40
Fifth Year or More	1	10
Graduate School	0	0
Race/Ethnicity		
Asian/Asian American	3	30
Black/African-American	0	0
White/Caucasian	6	60
Latino/Latina	1	10
Native American/Alaskan Native	0	0
Multi-ethnic/Other	0	0
Hawaiian/Pacific Islander	0	0

Table 3 continued.

International Student		
Yes	0	0
No	10	100
Play with Real Life Friends		
Yes	5	50
No, but I have in the past	4	40
No	1	10
College		
Agriculture	0	0
Education	0	0
Engineering	6	60
Health and Human Sciences	0	0
Liberal Arts	2	20
Management	0	0
Pharmacy	0	0
Science	1	10
Technology	1	10
Veterinary Medicine	0	0
Mean Age (years)	20.7	N/A
Age Range (years)	19-22	N/A
Reported Number of Hours Played per Week (Mean)	37.72	N/A
Range of Reported Hours Played per Week	13-58	N/A

Estimated Number of Hours Played per Week Compared to Planned Play Time	
35	20
20-25+	20-25+
30	15
60+	20+
20	25
20	20
25-30	25-30
20	20-30
40	40
20	10

Researchers

I am a counseling psychology doctoral student and served as the primary investigator. I conducted the in-person interviews and the email follow-up interviews. Two psychologists and I served as analysts during the data coding process. My advisor, a professor of counseling psychology, served as an auditor during data analysis. Each of the team members and my advisor either had prior experience with CQR or received training via reading Hill et al. (1997) as suggested by Hill et al. (2005).

Primary investigator. I served in the roles of an interviewer, data recorder, and data analyst in the study. Therefore, bracketing was important to set aside my experiences to take a fresh perspective (Creswell, 2012). My experiences with gaming began with the Atari and Nintendo when I was around 5 years old. I have played games ever since in some capacity, but much of my early play was limited to console gaming. It was not until 2005 that I immersed myself in online gaming (i.e., World of Warcraft) for approximately four years and developed an understanding of the culture of online gaming. I quickly realized I was spending much of my day either playing the game, thinking about the game, or conducting research to improve my performance in the game. My own experiences, in addition to the research, have shown me that online gaming, as opposed to single-player gaming, presents a greater risk of problematic levels of use. Therefore, my bias is that problematic online gaming exists and it often manifests through opportunity costs, violations of social norms, and game-related behaviors outside of the game itself (e.g., spending time conducting research on the game and how to improve performance). However, my experiences do not necessarily reflect others' experiences.

Team members. One team member was not knowledgeable about online gaming because she had never played an online game. She viewed people who spent much time gaming as nerdy and socially inept, because she knew people who stayed up much of the night playing games. She believed problematic gaming exists but did not know a sufficient cutoff to differentiate between regular and problematic gaming.

The second team member shared similar biases. She believed gaming multiple hours a day was a waste of time. She thought gamers had difficulties with social skills development and did not know about the large social component of online gaming. She believed problematic gaming exists when people choose to stay home to play instead of going out. She did not know a sufficient cutoff to differentiate between regular and problematic gaming. She did not view excessive gaming positively.

Procedures for Collecting Data and Measures

Screening Process

During the first recruitment phase, emails were sent to 4,000 random students via the registrar, and 187 students responded. Only 131 participants completed the screening survey, although one participant was underage and had to be excluded. Participants were asked to list the MMORPG(s) they played, estimate how many hours they spent each week on game-related activities, estimate how many hours they planned to game each week, answer demographic questions, respond to the Game Addiction Scale (GAS; Lemmens et al., 2009), and provide contact information. Of the 130 participants who completed the survey, 16 participants did not provide any contact information and could not be contacted if selected. After screening participants for age, type of game played, hours played, and GAS score, 21 participants were eligible to participate. The

interviewees were randomly selected among these 21 eligible participants by using an online random number generator.

Demographic form. Participants answered demographic questions (see Appendix H) as part of the screening process. The form requested basic information such as age, sex, race or ethnicity, college, and marital status. This information was used to describe the participants during the screening phase and selected interviewees.

Game Addiction Scale (GAS; Lemmens et al., 2009). The GAS was used as a screening tool and contains seven adapted diagnostic criteria of pathological gambling (i.e., salience including preoccupation and cravings, tolerance, mood modification, withdrawal, relapse, conflict, and problems) to measure game addiction. There is a 21-item and a 7-item version that use a Likert-type response format ranging from 1 (*never*) to 5 (*very often*). The 7-item scale was used to screen participants in this study. Higher scores reflect greater problematic gaming. A participant who scores a 3 (*sometimes*) or higher on an item is considered to meet that criterion and meeting four of the seven criteria is indicative of problematic gaming. Sample items include "Did you think about playing a game all day long?"; "Did you play games to forget about real life?"; and "Have you neglected other important activities (e.g., school, work, sports) to play games?" Lemmens et al. (2009) reported a Cronbach's alpha of .86 and .81 from administering the 7-item scale to two independent samples of adolescent gamers. The authors found evidence of cross-validity by determining that the structure held across the two independent samples. They also found evidence for concurrent validity by comparing scores on the GAS for both samples with time spend on games (.576, .549), loneliness

(.314, .174), life satisfaction (-.290, -.136), social competence (-.176, -.158), and aggression (.265, .188). Cronbach's alpha for the 7-item GAS scale in this study was .79.

Interviewing

Interview data were the primary type of data collected from participants (see Appendix I). The interview was used to obtain a history of participants' gaming experiences and activities, participants' perspective of problematic gaming, consequences resulting from gaming, and the function gaming serves for participants. Participants were asked to meet on campus to interview in a neutral environment for approximately one to one and a half hours. One participant was interviewed via Skype for proximity reasons. Participants were interviewed alone and with minimal distractions. Interviews did not take place in virtual worlds or while participants gamed, because it is likely the participants would be distracted. The in-person and Skype interviews, rather than email or telephone interviews, provided added depth of information through nonverbal behaviors which were recorded in field notes immediately following the interviews. The additional information allowed me to better determine important topics to the participants and when the participants were thinking about their responses without disrupting that process. A follow-up interview via email was conducted with each participant approximately one week later, after they have completed their journals (see below), to record any clarifications and to allow participants to add any information they may have left out during the first interview. At the end of the initial interview, participants were asked if they wanted a copy of their transcripts and the final results. All of the participants were interested in the final results and one participant requested a copy of his transcript. They were encouraged to provide feedback.

The study had the potential of causing emotional distress in participants. Although participants were at an everyday risk of having their gaming experiences questioned, the intent of this project was to delve deeper. This level of questioning presented an opportunity for participants to discuss potentially embarrassing or painful experiences. Therefore, all participants were provided with available counseling resources as part of the informed consent (see Appendices F and G). The informed consent form included the purpose of the study, data collection methods, duration of participation, risks, benefits, compensation, rights of the participants, how confidentiality was maintained, and how the data were used. In addition, participants' responses were de-identified to ensure data could not be linked back to the participants. Participants maintained rights to review their data, remove their data, and withdraw from the study at any time. The relationship between the research team and the participants terminated at the end of the study, although they were given a means to contact us if they had any questions or concerns pertaining to the research. Participants were each compensated with a $25 Amazon.com gift card for their participation.

Journals

Participants who were interviewed were asked to keep a journal (see Appendix J) for one week following their initial interview to gather data from each gaming session. These journals provided more information about the participants' context. The journal was structured to gather participants' play time; reasons for playing; feelings prior to, during, and after playing; consequences to playing; and a section for any other information participants wanted to include to corroborate their interviews. All ten participants completed their journals electronically and emailed them to me at my

university email address. Participants were reminded to turn in their journals as part of the follow-up interview. The journals were used in data analysis to supplement the interview data and for triangulation. Specific data such as the number of sessions and hours played across the week uniquely added to the data analysis. Participants were compensated once they returned their journals.

Interview Protocol

I conducted 10 semi-structured interviews based on the research questions. The interviews were semi-structured in that the interview protocol (see Appendix I) had a standard set of questions that all participants were asked, but I also asked for clarifications, used reflections, and used probes (e.g., uh huh, go on, tell me more). This structure fits with the CQR tenets of using open-ended questions, using words to describe phenomena, and studying a few cases intensively (Hill et al., 1997). The interview protocol included one of the primary research questions to aid in its answer: what is problematic gaming? The interview protocol was presented to members of my research team for feedback. The resulting protocol was then sent to two gamers for additional feedback. The final protocol was used in a mock interview to increase my comfort with the protocol to ensure the interviews elicited rich information.

The follow-up interview via email did not have a structured protocol. Rather, the purpose of the follow-up was to give participants the opportunity to add further information they may have forgotten to discuss in our first interview. Data from both interviews were assimilated in the data analysis.

Transcripts

After each interview, I transcribed the data verbatim, excluding minimal encouragers, silences, and stutters. After the interviews were transcribed, identifying information was deleted from the transcripts, and each participant was assigned a code to protect confidentiality. The transcripts were read multiple times during the data analysis process.

Data Analysis

After all the data were collected and transcribed, the data analysis process was initiated using CQR methods (Hill et al., 1997; Hill et al., 2005). The fundamental aspect of this method is arriving at consensus about data classification and meaning. The consensus process was achieved through team members discussing their individual interpretations and then coming to an agreement on a final interpretation. A healthy level of disagreement is desired for this process to facilitate multiple perspectives on the meaning of the data. Each team member worked independently at each stage and then met to have a discussion about the data until we reached consensus. The team met four times via video conferencing over the course of data analysis with intermittent communications via email. This process provides multiple perspectives that can approximate the truth and reduce researcher bias.

Domains

The primary team members independently read the first three transcriptions and divided the data into domains or topic areas (Hill et al., 1997). The interview questions served as a starting point for creating the domains (Hill et al., 2005). The primary team members met and consolidated the domains through the consensus process for the first

three cases. I coded the rest of the transcriptions and sent them to the other team members for an internal audit. The initial domains were revised throughout the process by reviewing the transcriptions to reflect emerging data. For example, the domains were further collapsed following the first external audit after the primary team reached consensus about coding domains and core ideas. Domains were also updated during the cross-analysis after emerging categories illuminated a better understanding of the data. Domain definitions were consistently updated to reflect changes in the organization of the data and these definitions were used to describe the domains in the next chapter. The process of developing domains in this study was aided by using analytic tools suggested by Corbin and Strauss (2008). I adopted the strategy of asking questions to guide me to think about what the data were telling me. For example, many social-related themes emerged and it was important to ask questions pertaining to the context of the data to obtain consistency in coding. I made comparisons between data placed within each domain to gain a fuller understanding of the properties of the domain. Making these comparisons aided in creating domain definitions. I also looked for words that indicated time to help me structure experiences and organize data into domains reliant on chronology (e.g., antecedents to involvement in online gaming).

Core Ideas

Core ideas are brief summaries that are constructed for the material within each domain for each case (Hill et al., 1997). Each coder independently read all of the data within each domain and then wrote summaries of the content for the first two cases. The essence of what participants said was retained but presented more concisely (Hill et al., 2005). Each core idea was then discussed among the team until consensus was reached

about the content and wording of each core idea. After we obtained an understanding of the core idea process by independently completing the first two cases, I wrote the remainder of the core ideas and the team served as internal auditors who edited and challenged the core ideas until consensus was reached. The external auditor examined the consensus version for each case to ensure the domains and core ideas were accurate and the wording was clear. The team then reviewed the auditor's comments and made further revisions to the domains.

Cross-analysis

Categories were developed to describe consistencies in the core ideas within domains across cases (Hill et al., 1997; Hill et al., 2005). The primary team independently developed categories by using the core ideas for each domain across all cases and inductively determined categories that best fit these core ideas. The primary team then met to discuss the categories and reach consensus on category names, category designations (i.e., general, typical, variant), and what core ideas were represented in each category. The consensus version created for the categories within domains was then reexamined to determine if all the data had been accounted for. The consensus version of the cross-analysis was sent to the auditor for feedback. The feedback process continued until the auditor and the primary team were satisfied with the analysis.

Clusters

Following cross-analysis, it became apparent that the results consisted of a large amount of data. To present the results in a coherent manner, I developed clusters of data, which involved grouping domains with broad similarities together. I organized the domains into four clusters to create a clearer structure and flow for the data.

Draft of Final Results

Every participant agreed to receive a draft of the final analysis and was sent a copy to allow participants to provide feedback about the results. Participants were asked to consider how representative the aggregated results fit to their own experiences.

Trustworthiness of the Data

Reliability

Creswell (2012) recommends that reliability be addressed through intercoder agreement. Bracketing will not completely remove researcher bias from the study, so a team of three researchers, including myself, analyzed the data. The primary strength of CQR comes from the team independently analyzing data before coming together to discuss it. Data are discussed until consensus is reached, providing support for descriptive, interpretative, and theoretical validity (Maxwell, 1992). My advisor served as an auditor to ensure the domains consensually created made sense. Beyond intercoder agreement, Creswell's recommendations to maintain field notes and to transcribe recorded materials were followed.

Validity

Emphasizing validity allowed me to assess the accuracy of the conclusions from the study. Creswell (2012) discussed a variety of strategies that can aid in this process. For this study, triangulation, clarifying my bias, member checking, and thick description were used. To accomplish these strategies, I compared the multiple sources of data gathered to corroborate evidence, described the participants' context in detail, offered the transcripts and results to participants for feedback, and clarified my bias through the process of bracketing.

Evaluation Criteria for the Study

Criteria for evaluating my study included the trustworthiness of method, coherence of the results, representativeness of the results to the sample, and applicability of the results (Hill et al., 1997). The trustworthiness of the method was established by providing enough details in the write-up (e.g., using quotes, providing extended examples, documenting procedures) so others can evaluate what happened in the research process including the adequacy of the research questions, interviews, sample, consensus process, auditing process, and consistency of the decision rules used across cases. The coherence of the results was established during the data analysis by demonstrating the results were logical, accounted for all the data, answered the research questions, and made sense to the outside reader. How representative the results were to the sample was determined from the cross-analysis. That is, the frequency in which each category appeared across cases was counted and categorized (i.e., general, typical, variant) based on how many cases the category appeared in. The applicability of the results was established by linking this study to how it can be useful for clinicians.

CHAPTER IV RESULTS

This chapter reviews the qualitative data gathered from 10 participants. The data were analyzed using CQR and provided a rich description of the common experiences among potentially problematic gamers. The results follow the guidelines set out by Hill et al. (2005) to visually depict all the data in a table and to at least narratively describe the general and typical categories. Some variant categories are described in the text because their inclusion adds to the overall narrative. Categories are considered general if they applied to all or all but one case, typical if the categories applied to between five and eight cases, and variant if they applied to between two and four cases. Miscellaneous data or categories applying to only one case were dropped and not reported in this section because the information was trivial and did not add to the understanding of problematic online game play. At least one example is provided, using quotes, to illustrate each category described in the text. There are 13 domains that emerged from the data, which are organized into four clusters: (a) characteristics of online gaming, (b) self-descriptions, (c) consequences of online gaming, and (d) interview process. These four clusters were developed based on broad similarities among the domains to further organize a substantial amount of data. The clusters provide an easier-to-follow flow for addressing the research question: What are the common experiences of potentially problematic

online gamers in college? Within the characteristics of online gaming cluster, there are five domains: (a) antecedents to involvement in online gaming, (b) gaming activity, (c) character creation, (d) functionality, and (e) perceptions of problematic gaming. With the self-descriptions cluster, participants provided descriptions about themselves within three domains: (a) mental health issues, (b) sense of accomplishment, and (c) personality characteristics. The consequences of online gaming cluster includes (a) positive effects of playing, (b) negative effects of playing, and (c) time loss. Finally, the interview process cluster contains (a) effects of the interview and (b) reasons for participating. Table 4 illustrates the domains and the categories within the domains.

Table 4

Categories and Subcategories Organized by Domain

Cluster/Domain	Category/subcategory	Frequency label (*n*)
Characteristics of online gaming		
Antecedents to involvement in online gaming	Introduced to online gaming through social ties	General (*10*)
	Prior interest in video games and fantasy	Typical (*7*)
Gaming activity	In-game activities	General (*10*)
	Professions and making money	General (*9*)
	PVP	Typical (*8*)
	Questing/grinding	Typical (*7*)
	Dungeons	Typical (*7*)
	Extracurricular game-related activities	General (*10*)
	Discussing games with friends	General (*9*)
	Preoccupation with the game	General (*9*)
	Guides/literature	Typical (*8*)
	Livestreams or YouTube	Typical (*5*)
	Tabletop gaming, conferences, and clubs	Typical (*5*)
	Gameplay changed over time	General (*10*)
	Takes place in college bedroom	General (*10*)
	Common to spend large periods of time alone	General (*10*)
	Uncluttered space	Variant (*3*)

Table 4 continued.

	Requires investment in hardware	General (*9*)
	Often utilize desktop computers	General (*9*)
	Takes place in dedicated game rooms/environment at parents' home	Variant (*2*)
	Multiple gaming sessions with frequent evening play	General (*10*)
	Hours played in a week > 20	General (*9*)
	Gaming is part of daily routine	General (*9*)
	Gaming is moderately prioritized	General (*9*)
	Arranged around game partners' availability	Variant (*3*)
	Game with or prefer to game with real-life friends and family	General (*10*)
	Game with online friends or acquaintances	General (*10*)
	Spend time playing alone	Variant (*3*)
Character creation	Planning character appearance and roles	General (*10*)
	Multiple characters or classes	General (*9*)
	Same sex characters are better reflections of self	General (*9*)
	Male oriented environment/sexism	General (*9*)
	Character naming is important	Typical (*6*)
	Character is a reflection or extension of the self	Typical (*5*)
Functionality	Social	General (*9*)
	Social comparison, recognition, and competition	Typical (*8*)
	Achievement and progression	General (*10*)
	Immersion	General (*10*)
	Story and fantasy	Typical (*6*)
	Flexibility in play	Typical (*8*)
	Increased play from anger/chasing losses	Typical (*7*)
	Source of entertainment and relief of boredom	General (*10*)
	Method of relaxation, distraction, and escape	General (*9*)
	Part of life and way to spend free time	General (*9*)
	Source to modify mood or emotions	Typical (*6*)
	Method of maintaining or creating social connections	General (*9*)
	Being invested in improving knowledge and skill at games	Variant (*4*)
Perceptions of problematic gaming	Problematic gaming is detrimental opportunity costs or sacrifices	General (*10*)
	Problematic gaming is experiencing a loss of control	Typical (*6*)

Table 4 continued.

	Personal awareness of potential problematic gaming	Typical (*6*)
	Involved but not addicted	Typical (*7*)
	Game addiction perceived as fun or involving	General (*9*)
Self-descriptions		
Mental health issues	Depression	Typical (*5*)
	Anxiety	Variant (*4*)
	Denied mental health issues	Variant (*4*)
	Family history	Variant (*4*)
	Substance use	General (*10*)
	Tobacco	Variant (*4*)
	Alcohol	Typical (*7*)
	Marijuana	Variant (*2*)
	Caffeine	Variant (*4*)
	Psychotropic	Variant (*3*)
Sense of accomplishment	Accomplishment in meeting goals and expectations	General (*10*)
	Accomplishment in academic achievement	General (*9*)
	In-game accomplishments rewarding but not as meaningful as real-life	Typical (*6*)
	In-game accomplishments similar to real-life	Variant (*4*)
Personality characteristics	Agreeable	General (*9*)
	Introverted qualities	Typical (*6*)
	Extroverted qualities	Variant (*3*)
	Easy going/fun/humorous	Typical (*6*)
	Conscientious	Typical (*5*)
	Leader	Variant (*2*)
	Intellectual characteristics	Variant (*4*)
	Less desirable perceptions	Typical (*6*)
Consequences of online gaming		
Positive effects of playing	Enhanced relationships locally and abroad	General (*9*)
	Mostly satisfied with social lives	Typical (*6*)
	Opportunities to learn and improve skills	Typical (*6*)
	Influenced major/career path	Variant (*4*)
Negative effects of playing	Opportunity costs	General (*10*)
	Limited hobbies	General (*10*)
	Exercise and sports	Typical (*8*)
	Academic performance	Typical (*6*)
	Social opportunities	General (*9*)
	Health and sleep	Typical (*8*)
	Missing obligations	Typical (*7*)
	Money	Variant (*4*)

Table 4 continued.

	Pressure to play	General (*9*)
	Pressure from friends or acquaintances	Typical (*7*)
	Self-pressure/own choice	Variant (*4*)
	Hurt or diminished relationships	General (*10*)
	Frequent gamer rage	General (*10*)
	Anger directed outward	Typical (*7*)
	Anger directed inward	Typical (*6*)
	Strategies to reduce anger	Typical (*6*)
	Negative perceptions of gaming	Typical (*6*)
	Under performance or short play duration	General (*10*)
	Hindrance of game progress	Typical (*6*)
	Social exclusion/spurning/disappointment	Typical (*8*)
Time loss	Commonly experience time loss	General (*10*)
	Flow state	General (*9*)
	Strategies to maintain sense of time	Typical (*7*)
Interview process		
Effects of the interview	Reflective of gaming experiences	General (*9*)
	Satisfied to help	Variant (*2*)
Reasons for participating	Personal interest in the topic	Typical (*8*)
	Easy compensation	Typical (*5*)
	Desire to help others learn about gaming	Typical (*5*)

Cluster 1: Characteristics of Online Gaming

The data contained in this cluster review common experiences among the interviewees regarding how they got started in online gaming, what gaming activity they engage in, where they game, when they game, with whom they share the experience, and why they play online games. In addition, participants provide their personal perspective on problematic online gaming. There are five domains within this cluster that contain a total of 38 categories.

Domain 1: Antecedents to Involvement in Online Gaming

The first domain describes how participants became involved in online gaming. Of the two categories that emerged, one was general and one was typical.

Category 1a: Introduced to online gaming through social ties. All of the participants described a scenario involving their friends, acquaintances, or members of their family introducing them to online gaming. Friends tended to be the most influential source. After a friend began playing a game, the participants were then encouraged to try the game. One participant describes,

> I had a buddy of mine who had said he had heard of this game. And I still wasn't really big into the whole gaming and stuff. Back then, I had a little old little notebook that couldn't run hardly anything so I had to try it out….from there, [snaps finger] it took off. I remember we would play, even back then, six hours a day.

Category 1b: Prior interest in video games and fantasy. It was typical for participants to have prior experience with video games such as console or old computer games. For example, for one participant, it "started with RPGs, which I still have a passion for and play." Some participants were also heavy into fantasy and read fantasy books. MMORPGs served as a way to become involved in the fantasy as one participant explains,

> I was always a big fan of fantasy and everything whenever I was younger. I read the books Aragon, Dragon Rider, all that kind of book…it was a way to become like a personal involvement in that world per se. So instead of reading about somebody else going through it, you got to go through it yourself. It's sort of an alternate reality.

Domain 2: Gaming Activity

The second domain encompasses participants' descriptions of the what, where, when, and who of gaming activity. Specifically, it describes what activities participants do within the game, what game-related activities they do outside of the game, any changes participants noticed in their gameplay over time, where the game activity takes place, and what is often required to play. In addition, the domain describes when gaming activity occurs and with whom. In all, 15 categories (12 general and 3 variant) and 11 sub-categories (4 general, 6 typical, 1 variant) emerged.

Category 2a: In-game activities. Under this category, participants described the gaming activities in which they most commonly engaged within the game. Unsurprisingly, all participants reported gaming activities. However, the sub-categories illustrated the most common activities: in-game professions and making money, engaging in player versus player (PVP) combat, questing or grinding, and completing dungeons. As one participant explained,

> When you first start, you would be leveling to get to the highest level to where the fun really starts in my opinion. And with that being said, you're usually going on quests….You can interact in the other forms of the game, which is the player versus environment stuff, which would be what we would call doing raids or dungeons….And then there's also the player versus player…It's you against one other person—real person—that can control their outcome better than a coded program….Other than just those, you can do professions. They give you things that your character can specifically do. There's different options and you only get to pick a few. You're limited to how many you can do, which kind of entices you

> to make more characters and go through the process on those….Then those resources that it takes or the things that you make or the things that you craft, you can put on auction house, which then can be sold and bought. It's your whole economy.

Category 2b: Extracurricular game-related activities. This category differs from in-game activities in that in-game activities focused on participants' activities within the game whereas this category contained descriptions of activities related to the game but that took place outside of actually playing the game. In other words, this category refers to how the game or gaming has extended into other parts of the participants' lives. The sub-categories represent the most common extracurricular activities which included discussing games with friends, having their thoughts or dreams preoccupied with the game, reading guides or other literature related to the game, and watching livestreams or YouTube. In addition, participants typically attended an activity involving a social gathering such as playing a tabletop game, attending a convention such as Gen Con, or being a part of a university gamers club. One participant reported,

> I talk about it more in my free time. It's become more of a part of my real life. When I first started, it was just a game. Now it's the game I play….I think about it all day. When I'm at work, I'll be like, I could be woodcutting or something. Or I wonder what I'm going to do today when I play it….I've spent countless hours on YouTube watching videos about it….I'll read websites where they will talk about a famous player and there will be a famous player sighting….When I'm not playing the game, I'll think about the game and how like maybe I can strategize better or what I can do better. I'll plan it in my head, because I'm not actually

> playing the game....I look at websites to see how you can do things better. You know, little guides.

Category 2c: Gameplay changed over time. All the participants provided reports that aspects of their gameplay changed over time. For example, some participants reported spending more time learning the game and exploring when they were new to the game and gradually transitioned to be more goal-oriented. One participant explains, "It has gotten a lot more goal-oriented versus just aimlessly wandering around looking for stuff to do." Other participants reported becoming more or less social with time as a participant described,

> When I first started playing, I thought that I was obligated to join a fellowship….I had a really hard time to find anyone that I'd fit in with. And you get into a chat box with like 25 of them at once. Like nope. You're ruining this for me.

Category 2d: Takes place in college bedroom. Participants provided descriptions of their gaming environments, and all of the participants reported primarily playing in their college bedroom. A sub-category revealed that all of the participants have spent large amounts of time alone while in college or while at home. In addition, a variant amount of participants reported keeping their gaming environment uncluttered. One participant stated,

> It's my bedroom….I like to have just a clear table to work on, maybe some water or whatever. But just having a clear, clean environment clears my mind. And then it just helps me not worry and escape even more….I spend probably most of the day alone other than maybe five or six hours….I would be in class and I might

> just take my computer to the union and get caught up on stuff. So I'll just be around other people but not really with particular ones.

Category 2e: Requires investment in hardware. Nine out of the 10 participants reported having an investment in hardware to play. For some participants, the investment included building their own computers, purchasing equipment (e.g., gaming mouse, keyboard, colored lighting) specifically for gaming, and using multiple monitors. A participant described his investment,

> The first thing you see is this just hulking tower of a computer. It's got my desk, two monitors on it, and slide out Zboard keyboard with a Razor Naga mouse. In terms of an investment where I put my money, most of my money has gone into my computer. So it's huge case, video GTX 660, eight gigs of RAM—I love that computer with every ounce of my being.

Category 2f: Often utilize desktop computers. Participants generally reported utilizing desktop computers to play online games. As one participant stated, "I actually just got a desktop a month ago. I used to game on my laptop all the time. It was really crappy, because gaming on your laptop is like—you barely get anything out of it."

Category 2g: Multiple gaming sessions with frequent evening play. Each of the participants were asked to track their play time via a journal. This data allowed the number of game sessions and time of day in which they played to be tracked. All of the participants reported frequently having multiple gaming sessions in a day. They also reported playing most often during the evening. For example, one participant usually had two gaming sessions a day and often began playing in the afternoon. On four days, he played into the early morning between 2am and 4:30am.

Category 2h: Hours played in a week > 20. The journal participants kept also allowed their total number of hours played across one week to be totaled. Of the 10 participants, 9 reported playing for greater than 20 hours. In fact, it was typical for participants to play more than 37 hours across one week. One participant played for a total of 58 hours and 5 minutes.

Category 2i: Gaming is part of daily routine. All but one participant described gaming as being part of their daily routine. One participant explained,

> During the school year, I like to wake up pretty early, before my classes start, and then I'll play some of the game. And then go to classes, do my usual day stuff. I don't game as much during the middle of the day…so usually, I'll game during the morning and a lot after my classes. During summer, because I start work pretty early, I don't get to game as much in the day. So I get pretty exhausted but I'll still go home and I'll make some food and then game.

Category 2j: Gaming is moderately prioritized. Under this category, nine of the participants reported having priorities they placed above gaming, although gaming remained a priority. One participant described his priorities:

> When I wake up, I see if anything needs immediate attention like class, work. Those things I would obviously have to go to. But other than that, like studying, homework, I usually procrastinate and I would game first. And then later, if I have enough energy, then I can study or do homework.

Category 2k: Game with or prefer to game with real-life friends and family. All of the participants reported either gaming with real-life associates in the past or present or having a preference to game with real-life associates. One participant explained his preference:

> Preferably, if I can find friends I know in the real world, if I can game with them, it's always exponentially more fun than finding random people online. Because you actually have a real personal connection with that person so it's a lot more fun to game with people you know in person.

Category 2l: Game with online friends or acquaintances. All ten of the participants also reported playing with people they met online whether briefly or consistently. Participants typically joined guilds and formed friendships or online acquaintances. They also reported developing online friendships during random encounters as explained by one participant:

> I met [another player] just questing in the woods whenever I first started off. And we were both real low level early on in the game and then just happened to go from there. And [a second person], I met through a pickup group in a raid. I was looking for another player who wasn't in our guild, and I ended up finding him. We talked after the raid and then we just kept talking. So I was able to, because of how we initially interacted, to continue that.

Domain 3: Character Creation

The third domain reflects participants' process of creating a character in an MMORPG. The six categories (four general and two typical) capture the importance of planning their characters' appearances and roles, having multiple characters, creating a

character to be an extension of the self especially in terms of gender, and character naming.

Category 3a: Planning character appearance and roles. Every participant planned their characters while creating their character. Some participants only planned the look of their character while other participants also planned the role in which they intended to use the character. One participant described both in his planning process:

> So my character creation process goes through a couple of stages. Do I want this character to be more like me or less like me? Or do I even have that option? And usually, the first question is race. Can I play a human? Can I not play a human? Do I have the option?...What's the benefit of playing this race versus the other ones.…It will be dragon or human usually….Passed that point, what do I want my job to do? What do I want this character's goal to be? For Eve, it was combat-related. For Guild Wars, it was warrior. For Elder Scrolls, it was an assassin.

Category 3b: Multiple characters or classes. Almost all of the participants created multiple characters to play different classes or to develop alternate characters for specific reasons such as PVP. One participant explained,

> On my main server, I have 10 which is the max number. But as a whole, not including ones that I have deleted, I probably have around 40 characters total. Not that I play all of them. I mainly focus on my main two, which are the hunter and the death knight. And then [I focus on] whatever I'm really feeling recreationally at the time to level up, just to go run around and do quests.

Category 3c: Same sex characters are better reflections of self. Under this category, participants generally described that creating a character of the same sex was a

better reflection of themselves in the game. Participants felt comfortable changing aspects of their characters' appearances such as race and height, but not in terms of sex. One participant stated,

> There is a certain stigma behind a man that creates a female character and gives her very voluptuous figures. I don't really need that. I think the character should be a better representation of myself rather than of something that I wish to control....The people that do that, they're like, I'm a girl, I'm a girl in the game, but then outside the game, they are actually some overweight males that usually just have control issues that…break a lot of social norms by doing so.

Category 3d: Male oriented environment/sexism. Related to the issue of gender swapping, participants generally reported awareness of or contributions to a male dominated environment. Some of the participants reported that they may be treated differently if they played a character of the opposite gender or that real-life friends may react negatively toward them for violating a social norm. Some participants also reported expectations that women should serve limited roles in the games. For example, one participant stated, "Definitely people treat women differently in the game. Like don't want to take a woman to battle, right?" Another participant described her personal experience with sexism within the game:

> I just really like strong female characters and sometimes you do get harassed by male gamers. It's like no, I just want to be left alone….And I know other female gamers who like purposely make male characters so that they don't get harassed….The armor and stuff is absolutely impractical and you would die in about 30 seconds if you wore that in real-life. And it's just for their fantasy….I

> feel slightly attacked honestly. And I don't think that's appropriate. It's not appropriate anywhere but especially in a setting where you don't even have to worry about other people. Why are you going out your way to harass me? It's just frustrating….There have been a few times where you're doing a quest with a guy and then he's like well, I've been doing this for blah blah blah. And you're just a young girl….They try to bully you just because you're different. You're from an oppressed section of society….They bring their sexism and their racism and their homophobia into the game.

Category 3e: Character naming is important. Participants typically found naming their character to be an important part of the character creation process. One participant stated,

> When it comes to picking a name, they always have those randomize buttons. Always have since the creation of games. You can always just randomly generate a name, you can build on it, take off of it, whatever the deal. And I've never used it once in my life, and that's something I've always been proud of.

Category 3f: Character is a reflection or extension of the self. Half of the participants discussed how their characters reflect them in appearance or mannerisms or become an extension of themselves by becoming a representation of the self in the game. One participant reported,

> Your character will end up very similar if not a mirror of yourself. So your mannerisms appear in your gameplay regardless of the fact that you have anonymity. Oh, this guy has no idea what I do. Well you're given an option. You're going to reflect on that option the way that you would reflect on the option

> and then you would choose what you would choose. So your character ends up a reflection of yourself. Unless you are specifically making it something that it's not. The other one is when you get into like a TeamSpeak channel or you are playing with friends—people who actually physically know you in the real life—your character reflects yourself because they know what to expect of you so they will see it. Again, unless you're going against the grain specifically on that.

Domain 4: Functionality

The fourth domain discusses why participants play MMORPGs. As such, the domain captures participants' motivations to play as well as personal meaning and purpose of playing MMORPGs. Of the 10 categories in this domain, seven were general, two were typical, and one was variant. All three sub-categories in this domain were typical.

Category 4a: Social. All but one participant reported that the social aspect of MMORPGs is one of the biggest appeals of the game and a prime motivator to play. In addition, a sub-category emerged from the data regarding participants typical desire to be recognized by others or to compare oneself to others via competition. One participant reported,

> The biggest thing about MMOs is that you are playing with other people. It's not just you in an MMO. You're not alone. Eventually, you're going to find yourself a guild or you're going to find yourself a bunch of friends that you can raid with. It becomes a whole different experience than just playing by yourself because you're playing with friends or you're playing with people you met online and they become your friends. All the sudden you're playing with people across the

> world….Back in the day when people would have their friends over to play Mario Kart on the Nintendo…MMOs just an extension of that. People who love playing with their friends, they end up going in MMOs and playing with even more friends….Like being able to have people look up to you…when you're walking around the most populated city with the best armor that the game can offer, people are going to be like wow, this guy is the deal. This guy is legit. You just want to be recognized. You want to be admired. You want people to know that you're the best of the best.

Category 4b: Achievement and progression. All of the participants reported achievement-based motivations for playing. In other words, the participants were motivated to progress in the game by gaining levels, obtaining better weapons and armor, or meeting personal goals in the game. One participant reported his motivation to play was,

> Wanting to progress. Progress. I think that's the biggest thing that gets people hooked is you start something, say you start a brand-new character and you have a buddy like I know for WoW. I was the recruiter friend. You're leveling up with this, could be your best friend, and we hit level 40 in a day. Tomorrow we will shoot for 60. Next day, we will hit for 80. Level 85. See if we can hit 90 by the end of the week. And then you want to do raiding. Let's see if we can get a certain gear score by the end of the week. Let's go for the legendary cape. Let's go for this. Let's do this. Hey, you want to just go run all the old-school dungeons and get the achievements? There's so many things that you can do and so many things that you can make yourself progress in.

Category 4c: Immersion. Every participant had motivation to play because of immersive factors such as a dynamic game environment stimulated from new content consistently being released. Two typical sub-categories emerged providing evidence that the story and fantasy world and flexibility to personalize gameplay were important immersive factors. One participant described these immersive factors:

> There is a sense of mystery as to what the next level holds and what the next weapon and the next armor, what they can do. And I really like that sense of mystery....I like how you play at your own pace whereas other games like real-time strategies, you're always trying to keep up with your opponent. Whereas in MMORPGs, if you want to play 3 hours today, you want to play 4 hours today, that's all up to you.…The quests have really good story lines and I really like that about them....I think one more thing I would have to add is that new content available from the publishers would entice me to put aside other responsibilities more than if no new content was available.

Category 4d: Increased play from anger/chasing losses. Participants typically experienced motivation to play longer after becoming angry from losing in a competitive match or being defeated in a dungeon. They attempted to make up for their losses but often played even worse because they felt upset. One participant explained,

> If you do something wrong and you mess up, which should happen, they'll put you down. They'll yell at you. They'll talk crap about you to other people….My biggest flaw is my mindset, because I get put down so easily that I just feel bad. And feeling bad only makes me play worse and then I know they're getting more upset and that makes me more upset and then you play worse. And it's that

> downward spiral that I tell people that you can't have….I'll play and I'll play and I'll play, and if I performed really bad—I do really bad in a game, I get really upset—I just want to play another one to make up for it.

Category 4e: Source of entertainment and relief of boredom. One reason participants generally valued playing MMORPGs was because the game served as a source of entertainment and relief of boredom. One participant explained,

> It's just a way to relieve the boredom….I'm bored, I have free time. I'm only taking seven credits worth the classes. I don't have much homework, and I'm not going to spend my entire day out and about. I'm going to be in my room bored at some point. Might as well play a video game. It's just a boredom thing….It's nice to be in a different world full of dragon slayers and magic where you can feel you can use your imagination. When you were born and raised on magic and dragons and all that stuff, and you realize…your life is so boring compared to all these stories that you're learning about….I just play because it's fun and it fills that boredom.

Category 4f: Method of relaxation, distraction, and escape. Another reason participants generally valued playing MMORPGs was the games provided a source of relaxation. They provided participants with a temporary distraction or escape from stressors. One participant stated,

> Gaming is more of an escape from reality, just something to do when you're bored or need to not worry about things that are happening in the real world. It's a de-stressor more than anything else…something similar to like alcohol. Alcohol really doesn't have any positive effect on your life but it's something people do as

> a de-stressor. So I view it something similar to that, but not as extreme as alcohol….I didn't want to deal with my parents either—on my ass about grades in school and stuff. So I would just go to my room and play videogames, so I didn't have to talk to them or discuss anything about school or anything. My parents were definitely a big part of why I would play videogames.… It was all too much so I would just play video games to get out of it and de-stress about the whole thing.

Category 4g: Part of life and way to spend free time. Participants generally reported that playing games was a major part of life and a primary way to spend their free time. One participant, who played because he "had free time in between homework and after girlfriend left", stated,

> When I think gamer, I think somebody who, honestly, plays to an extensive amount. There's people I knew when I was back in high school who would play… an hour or two or whatever. I would not classify that as a gamer. I would classify that as playing games as a hobby. Gamer's someone who plays games for the majority of the time. I'm a full-time college student and I probably play games six or seven hours a day, usually until threeish in the morning, go on five hours of sleep a night, wake up, go to class, get my stuff done, and come back and do it all again. It's just something that honestly I've done since I was about 9 or 10. And I've never stopped doing it.

Category 4h: Source to modify mood or emotions. Participants typically used games as a source to modify their moods or emotional states such as alleviating depression or having an emotional release. For example, one participant stated that

gaming “gets me out of depression, it gets me angry, it gets me happy.” Another participant stated, “If something in my life is going wrong…it has a little bit of an emotional release.” Although participants’ verbal reports were a modification from a negative mood to a positive mood, descriptions from their journals suggested the opposite may also be true. Participants reported their feelings before, during, and after game play. Some entries illustrated participants were excited, relaxed, or happy prior to playing and tired, disappointed, or worried after playing. However, more information is needed to better understand the relationship.

Category 4i: Method of maintaining or creating social connections. Nine of the 10 participants used online gaming as a method of keeping in touch with friends or meeting new people. One participant described how online gaming helped him create and maintain social connections:

> I have personal friends to the game. I've actually met some people from the game in real life. And it’s just that interaction with them. It's the same reason anybody would do an instant messaging. They will just want to talk to their friends and it’s a way to do that while still having a distance between them, especially since we went off to school a couple of years ago. My friends and I all played online and can obviously message each other on the game instead of texting each other—can actually interact personally, jump around the other person if that’s what really strikes their fancy.

Category 4j: Being invested in improving knowledge and skill at games. Four of the ten participants described that being very knowledgeable of a game was part of the value they placed on playing online games. One participant stated,

> A gamer, to me, is someone that's really into it and likes to know the ins and outs of a game…almost like a sport, like get as good as you can at it and train yourself.… Like someone who treats it like a sport. Because athletes—what is an athlete? Someone who likes to know the ins and outs of their game and better themselves in that game. So gamer's an athlete for video console or computer game.

Domain 5: Perceptions of Problematic Gaming

The fifth domain reflects participants' definitions of problematic online gaming. The domain also refers to participants' perceptions of their own level of play. Finally, the domain captures participants' perceptions on the culturally transmitted message that addiction to a game is positive. Of the five categories that emerged, two were general and three were typical.

Category 5a: Problematic gaming is detrimental opportunity costs or sacrifices. This category reflects the primary definition the participants provided for problematic gaming. All of the participants defined problematic gaming as choosing gaming over other important areas in life, creating sacrifices to those areas. One participant described problematic gaming as:

> Where you choose the videogame over everything else in a simple sense. Whether it be your homework, whether it be you're putting off things: procrastination. It looks like even to a point of unhealthiness where you may not be eating as much as you need to. You're not staying as in shape as you may need to. You're not taking care of your body first. And I think just the overall, the overall need like you don't feel right if you didn't play. If you go a day without playing, you're

> really freaking out a little bit….I've seen that with me personally….I think that's where problematic gaming can really turn to is more or less of a better word of an addiction kind of thing where you just have that need to play. You let things slip from the real world, your physicality, your mental, being able to take care of your professional career first.

Category 5b: Problematic gaming is experiencing a loss of control. Problematic gaming was also typically defined as a loss of control in that someone may play excessively and not be able to stop or may become angry enough to physically lash out. One participant explained his definition:

> Problematic gaming would be excessive gaming to the point where from dawn to midnight, every day for the week, that's all somebody is doing.…There are professional gamers who play…but even they don't sit there 24 hours a day and just game….It's when they are so engrossed in it, they can't differentiate it from the real-life. Or they don't have anything else going on in the real-life that forces them off....The other way would be the people who get…really mad and they start breaking things like my friend who broke his keyboard. There have been people who have thrown their TVs out windows or thrown consoles, broken computers, that kind of stuff.

Category 5c: Personal awareness of potential problematic gaming. Six of the ten participants described some level of awareness that they gamed problematically at the time of the interview or in the past but no longer did. For example, one participant stated, "I definitely did have sort of an addiction to video games when I was in high school and

middle school. That changed [in college].” Another participant described his current experience:

> I would be borderline problematic gaming since I would have so many friends start out with and because of gaming, these people would just slowly fade away. But as long as you lose something from gaming, that would be considered problematic gaming.

Category 5d: Involved but not addicted. Seven of the ten participants reported that they were highly involved with gaming but they were not addicted or playing at problematic levels. One participant described how he counteracted the effects of gaming to keep it from becoming problematic:

> I do game substantially; however, I don’t view it as problematically. I don't think it is problematic whenever you counteract it to a certain degree. I do have that social interaction. It does not take that large of a toll and I’m holding a 3.7 GPA right now in engineering. In terms of my social life, I see people on a daily basis. I talk to people on a daily basis. I keep constant communication. It does not really hinder that. If it were to do anything, it only maybe delays my response by a couple of minutes until I can text or something like that. So I personally do not view myself as a problematic gamer although I do game substantially like probably a quarter to half a day. But I go to the gym on a daily basis, I talk to people on a daily basis, I would say that I counteract it sufficiently to disqualify it as problematic. Whereas if I did not do that, I would probably say that I was. So in terms of volume, if you're going to go purely off number of hours played, I

> would say it is problematic. But if you're going to go off personal life as a whole, social, physical, and emotional, I would say that I am not.

Category 5e: Game addiction perceived as fun or involving. Participants generally responded that when the term addiction is used to describe a video game, it means the game is fun and may draw someone in to become very involved with the game. Some of the participants explicitly stated the term is not referring to the negative effects of an addiction when used in casual language to describe a game. One participant explained,

> I think our language is growing….We're going to be using more and more slang. I don't think people ever say I'm addicted to this game in a way that they say it's a bad addiction. It's kind of like the word rape. Rape is a very bad thing…but people now use it in a way that refers to something was slaughtered….Like I raped that kid in this video game; like beat him so hard that I'm so good at this game. And that's terrible that people do it that way and they're starting to use that in a different light. But it's just how the language is…and I don't think people ever say I'm so addicted to this game and actually mean I am a hundred percent addicted to this game. I just think it's a way to say I really love this game and I have been playing this game a lot.

Cluster 2: Self-Descriptions

The data organized in this cluster are non-game related descriptions of the self. Participants were asked to report any mental health issues they have experienced, what provided them with a sense of satisfaction, and personality characteristics. No formal assessments were administered to determine this information and the data is based solely

on the reports of the participants. This cluster contains three domains with a total of 17 categories.

Domain 6: Mental Health Issues

In the sixth domain, participants provided descriptions of their personal and family history of mental health issues. In addition, participants provided a description of their personal substance use. Five categories (one general, one typical, and three variant) and five sub-categories (one typical and four variant) emerged from the data.

Category 6a: Depression. Half of the participants reported experiencing depression. For example, one participant stated, "I've had months of time where I just felt it's so hard to get out of bed. There's no reason for life. I've never been suicidal, but I've just felt really hopeless, really down."

Category 6b: Anxiety. Four of the participants experienced varying levels of anxiety. One participant said, "I have been to counseling a few times and I have two anxiety disorders: generalized and social. And then I have depression and I've been on medication…it really has helped me."

Category 6c: Substance use. All of the participants reported use of substances at varying levels. The sub-categories identify what substances the participants used. Seven of the ten participants reported alcohol use most generally two to three times a month. Four participants smoked or chewed tobacco. Two participants smoked marijuana daily or weekly. Four participants reported caffeine use through sodas, coffee, and energy drinks. Finally, three participants took psychotropic medication for depression and anxiety.

Domain 7: Sense of Accomplishment

In the seventh domain, participants described what provided them with a sense of accomplishment in life. Participants also compared their feelings of accomplishments outside of the game to accomplishments within the game. Of the four categories in the domain, two are general, one is typical, and one is variant.

Category 7a: Accomplishment in meeting goals and expectations. Every participant felt a sense of accomplishment by meeting expectations whether from achieving daily goals, having fun with others, making parents proud, or meeting societal expectations. For example, one participant described feeling accomplished from:

> Good grades. If I make a good joke and people laugh or if I have a good time with a girl. Normal things. If I make money. If I do a good job. If I do what society expects me to. If I make my parents happy and if I'm generally a good person and live by my morals.

Category 7b: Accomplishment in academic achievement. All but one participant mentioned feeling a sense of accomplishment from doing well in school and keeping up on schoolwork. One participant stated, "It makes me feel really good to be on top of that [schoolwork] and to be on top of readings because I used to never do textbooks readings. But then I realized that I needed to." Another participant said, "In terms of school work, getting high marks. I definitely enjoy getting high marks, getting questions right, that kind of thing."

Category 7c: In-game accomplishments rewarding but not as meaningful as real-life. Participants typically did not find in-game accomplishments to be as rewarding as real-life accomplishments. They provided reasons such as real-life accomplishments

had real consequences and were for the betterment of themselves. One participant explained,

> There's really no substitute for something that makes you happy in real life versus something that makes you happy virtually. Seeing somebody happy because you made them that way is definitely a lot better than oh, I got an achievement in World of Warcraft. So I would definitely say that it makes me feel better to get something right in real life. That's not to say there's been nights where me and my roommate have… finally hit that next step together [in a game], all of us, we're like oh yeah, that's awesome. That's a lot of fun too. Don't get me wrong. But really not anything that compares to actually doing something in real life that's satisfying to you, because I mean that is real consequences versus virtual.

Category 7d: In-game accomplishments similar to real-life. Four of the ten participants found in-game accomplishments to feel very similar to real-life accomplishments because their sense of accomplishment was related to the amount of time or effort they put into something. One participant stated,

> It really depends upon the amount of work that went into it relative to the other things. So that homework assignment took me an hour to do. I got an A on it. It didn't take me a lot of effort. If somebody new into the class could've gotten it done, it's kind of a hollow victory. And then you get this [ship] that took me years to accomplish that new players can barely even dream of. Yeah, I'm going to tote that as a really good accomplishment. So the difference between a game accomplishment and a real world accomplishment is not, this is a game and this is real world, it's the amount of time I put into it. The amount of effort.

Domain 8: Personality Characteristics

The eighth domain is comprised of participants' self-descriptions relating to personality characteristics or attributes which with they identify. Eight categories emerged from the data with one general, four typical, and three variant.

Category 8a: Agreeable. Nine of the ten participants reported traits related to agreeableness. They had a concern for getting along with others and often used descriptions such as being caring, non-confrontational, loyal, and trustworthy. One participant stated,

> I'm a caring person….I make sure I don't say anything that would offend someone. I go out of my way to make sure I'm not going to say something that would ever offend any my friends or anybody I'm around, because I don't like to offend people. It's partly I don't want to be in confrontation ever….I like to think that I'm genuine. I'm not going to go talk behind someone's back. I'm pretty straightforward and to the point.

Category 8b: Introverted qualities. Participants typically described having introverted qualities when describing themselves. For example, one participant stated, "I'm definitely more reserved. I don't go out of my way to talk to people if I don't have to." Another participant explained, "Shit man, maybe I am introverted. I don't know. It does take energy from me to socialize. But I still can socialize. I like socializing."

Category 8c: Extroverted qualities. Three of the ten participants described themselves as having extroverted qualities. One participant stated,

> I'd say I'm pretty outgoing. I think I'm always the one who's always having to be the talker I feel like. When it comes to my group of friends, they're not very, the

> best word I can come up with, is talkative when it comes to other people. I'm always the one, like some random guy comes up our group, I'm the talker. I'm the one who has to talk to the guy. What's going on? Hey, how you doing man? You know, this, that, and the other. They call me the BSer. I'm the one who always has to go up and talk.

Category 8d: Easy going/fun/humorous. Six of the ten participants described themselves as easy-going and funny. One participant stated, "I think I'm fun or funny….I tease people a lot and joke around with people a lot." Another participant explained he will "try to be lighthearted. I definitely think if you're not laughing, you're not living."

Category 8e: Conscientious. Half of the participants described traits of conscientiousness such as trying hard, being competitive, and being responsible. For example, one participant explained,

> Once I pick something to study, I will go at it. I'll do it or I won't let go of it. I picked…engineering and it was a struggle, but I didn't decide to drop engineering. I just kept going at it. I'll persevere in almost anything I choose to.

Category 8f: Less desirable perceptions. Participants typically had awareness of less desirable traits as perceived by themselves or by others. For example, one participant stated, "When people don't like me, they say that I'm bitchy." Another participant explained,

> I can be pretty bullheaded sometimes… just pure stubbornness…. If you ask somebody I just met, they might not be a fan of me depending on the environment in which we just interacted… sometimes I will get a little curt with them… Sometimes I can be…just a dick…. I have a strong feeling of jealousy sometimes.

> If I see somebody who is in better shape or somebody who is happy or something like that or if my girlfriend is with somebody else, then I will get this strong feeling of jealousy.

Cluster 3: Consequences of Online Gaming

Positive effects of playing, negative effects of playing, and time loss all result as a consequence of playing online games. Therefore, these three domains are organized within this cluster to describe some of the commonly experienced results of playing online games. The three domains contain a total of 12 categories.

Domain 9: Positive Effects of Playing

In the ninth domain, participants described the positive consequences they experienced from playing online games. Of the three categories in this domain, one is general, one is typical, and one is variant. One typical sub-category also emerged in this domain.

Category 9a: Enhanced relationships locally and abroad. One positive effect participants generally experienced from playing online games was having closer friendships including people from all over the world. The sub-category illustrated that participants are typically satisfied with their social lives. One participant stated,

> You're looking at sixth-grade getting into then middle school, I had moved. And another friend of mine, I had found out that the guys that I was talking to, five of them played RuneScape. So one of them became a really good friend of mine….Out of those five guys I used to play RuneScape, my roommate who is now here at college with me, was always hardcore.….I definitely learned quite a bit from online gaming actually. I'd say even partially into social skills and

> learning about other people from all over the world. I think that's something pretty big, pretty significant….you meet people from all over the world playing games….I really don't think I can change anything about me because I'm very happy about how I go about things and how I'm just who I am….So I know I have my true friends that are always going to be there like my physical friends are always there. And then I have online friends that I meet or whatever. And then have the best of both worlds with the friends that actually play together with me.

Category 9b: Opportunities to learn and improve skills. Six of the ten participants were able to develop skills and use games as opportunities to learn various things. Participants discussed learning time management, improving their vocabulary, learning more about oneself, and improving skills such as typing, social, and leadership. One participant explained how playing games helped him improve his skills:

> I type upwards of 180 words a minute and it's just because I play a lot. And that led into being really good with English, interestingly enough. When I type…no matter what, I always type grammatically correct….When it actually started transitioning over to school, even in college-level courses, I ace everything because I can bust out an eight page paper in like an hour and have it all grammatically correct….I've become extremely fluent on a computer mainly through people in Call of Duty 1, interestingly enough. They're all the nerdy third-party program people who have found all these crazy things and through them, I've developed interest for like Linux and different operating systems and programming. And they really extended the knowledge that I have on computers. They showed me all this really cool stuff just through community.

Domain 10: Negative Effects of Playing

The tenth domain reflects participants' descriptions of the negative consequences they experience from playing online games. The categories reflect opportunity costs, pressure to play, diminished relationships, frequent anger, external or internalized negative perceptions of gaming, and consequences related to under performance and short play duration. There were five general and one typical categories. In addition, 14 sub-categories emerged from the data with two general, ten typical, and two variant.

Category 10a: Opportunity costs. All of the participants have incurred opportunity costs from playing online games. The sub-categories provided more details about what participants specifically gave up to play. Participants generally gave up or limited the range of hobbies they engaged in. For example, one participant stated, "I did marching band, pep band, that kind of stuff. And I stopped doing those things as gaming got more into my life." Participants typically gave up sports or limited their exercise as one participant explained, "There's definitely times where I neglect going and working out frequently, because I'd rather just stay at home and play. So you'll gain weight and then I feel even worse about myself." Participants also typically mentioned academic performance. For example, one participant stated he had "to submit an assignment for class without putting much effort." Participants generally gave up opportunities to spend more time with non-gaming friends and family as expressed by one participant, "Maybe time with other people...other friends who maybe don't play….When I was younger, it was probably more family time I took away from. I'd have chose to play with friends rather than spend time with my family." Participants typically experienced costs to their health and sleep. One participant stated, "I lose track of time…not getting enough sleep

sometimes if I'm not careful about it.… My carpal tunnel flared up tonight." Participants also typically missed obligations such as class or not meeting deadlines. One participant stated, "I have classes. Sometimes I don't care to do them." Finally, four participants mentioned costs associated with playing such as monthly subscription fees.

Category 10b: Pressure to play. Participants generally experienced pressure to play. The sub-categories illustrate that some pressure typically comes from other people and four participants placed pressure on themselves to play. One participant described some of the pressure his best friends put on him to play:

> I get from all my roommates, come on, come on, you can do it. Come join us. They'll poke fun. They'll send a text like oh, you pussy. Come on.…Don't do homework or don't go out with one of your friends. They're like come play League with us or come play WoW with us.

Category 10c: Hurt or diminished relationships. All of the participants had experiences of their gaming affecting their relationships negatively to varying degrees ranging from disappointing parents or friends to losing relationships. One participant explained how gaming hurt his relationship with his ex-girlfriend:

> My ex-girlfriend...she would know that I was playing the game because I wouldn't text her back. And she got mad. She would get mad when I didn't text her back because the way League works you put 45, an hour of your time of pure attention. You can't pick up your phone and text somebody back.…When it comes to having somebody in your life that requires your attention all the time, gaming definitely is harmful to that.…Either you find a girlfriend or a wife that plays the games with you or you find a girlfriend or a wife that you can put down

> the game for….I couldn't put down the game for my ex-girlfriend so we ended up breaking up.

Category 10d: Frequent gamer rage. Participants generally experienced frequent anger while playing online games, especially when they were younger. The sub-categories provided more depth about what they did with that anger. Seven participants had experiences of directing their anger outward such as having bursts of yelling at the screen or at someone. One participant stated he "was a little bit more snappy with my parents or I would be in a bad mood." Six participants had experiences of directing their anger inward by becoming quieter and letting the anger stew inside. One participant stated, "I'm normally pretty talkative. When I'm pissed off, I just get quiet and I never yell at people." Six participants also discussed strategies to reduce their anger such as taking a break or going to the gym. One participant reported, "If it's bad enough, I would just quit the game and do something else."

Category 10e: Negative perceptions of gaming. Participants typically dealt with either internalized negative perceptions or external messages from others that gaming is a waste of time. For example, one participant reported,

> I feel like I'm wasting time. I feel like I'm not experiencing life to the fullest….I just spent a bunch of time playing this game. Could've done something else….I think people think gamers are nerdy and so I feel like I've lost some self-esteem from it.

Category 10f: Under performance or short play duration. Participants generally reported negative effects from under performance and not playing long enough. The sub-categories highlighted the most common negative effects. Participants typically

found not playing long enough hindered their game progress. One participant stated, “If you don't play enough—you're always working for the next milestone or benchmark—and if you don't reach that in time…it makes it much harder to progress further if you didn’t get it before.” Participants typically found that under performance carried consequences such as being excluded from or kicked out of groups, disappointing others, or being spurned. One participant explained, “If you don't play well enough, you get kicked out the group.”

Domain 11: Time Loss

The eleventh domain described the experiences participants had with losing track of time and strategies they utilized to maintain a sense of time. Of the three categories in this domain, two are general and one is typical.

Category 11a: Commonly experience time loss. All of the participants had lost track of the time while playing. For some participants, the experience was worse when they were younger as one participant explains,

> In high school, when things didn’t matter quite as much, or even in the summers, spring break, or whatever, we would play for 15 - 18 straight hours. We used to really really play. And it's incredible how much time you seem to lose. That's another one of those things that has gotten better as time has gone on. Definitely hasn’t happened as badly. I’m much more time aware because I know I have things to get done.

Category 11b: Flow state. Nine of the ten participants experienced being so immersed in the game that they lost some awareness of their surroundings. Participants’ descriptions were similar to what Csikszentmihalyi (2014) described as being so involved

in an activity that everything else is forgotten. One participant explained his feeling of disconnection from his environment:

> Literally where did time go? What was happening during that time? What was going on? You try and think okay, where was I? I know I've been sitting here in this one spot, but what's been going on for the past four hours that you haven't heard anything. Nothing caught your ear. You didn't hear a random noise behind you or anything like for the entire duration.…So then at that point, you're like okay, now I got to go find out what's been happening, if anything. I mean, you do feel a little disconnected.

Category 11c: Strategies to maintain sense of time. Participants typically employed strategies to maintain a sense of time, especially when they had things to do. Some of the strategies mentioned included setting an alarm, placing a clock in view and constantly checking it, and placing limits on how many in-game activities will be completed before quitting. One participant explained his strategies:

> If there is something that gives you the reference for time, or some anchor holding you to the outside world, it's much harder to lose yourself into a game than if you had nothing and you're just focusing completely on this game. The biggest thing that usually I end up doing is I have something that forces me to look at the clock so I will not lose myself into the game….I try to eat at a regular time every day. So it will usually be it's getting close to time that I should eat or… I've done so much in a game, mined so much, done so many quests, and I wonder how long that took and I look at the clock….Also if you get thirsty or have to go to the bathroom, you look at the clock on the way out. It's something to anchor yourself.

Cluster 4: Interview Process

The data clustered in this section revolves around the interview process itself. It explores what effects the interview had on participants and their reasons for agreeing to be interviewed. There are two domains within this cluster with a total of five categories.

Domain 12: Effects of the Interview

The twelfth domain describes the effects the interview had on participants. Of the two categories, one was general and one was variant.

Category 12a: Reflective of gaming experiences. Generally, participants became reflective about their gaming experiences and thought about the influences gaming has had on them as a result of the interview. One participant described,

> Just kind of made me take an outward look on things. You play games for so long, you don't really think about it. You don't really think about the effect [gaming] has on your life or anything like that.…I've been problematic. And if anything, it kind of made me see my own progression through the years….And it kind of makes me realize that with age comes patience and with patience comes more relaxation from playing games than stress.

Domain 13: Reasons for Participating

The final domain describes the reasons participants chose to participate in the study. All three of the categories in this domain are typical.

Category 13a: Personal interest in the topic. Participants typically had a personal interest in online gaming and decided to be interviewed out of interest. One participant stated, “Because I played MMRPGs for so many hours, I just wanted to know what kind of research was being done on them. I was curious.”

Category 13b: Easy compensation. Participants were also typically interested in receiving the gift card offered as compensation as one participant simply stated, "I wanted the gift card."

Category 13c: Desire to help others learn about gaming. Another typical response participants had for participating in the interview was a desire to teach others about gaming, especially in regard to reducing stereotypes. For example, one participant reported,

> I know a lot of the studies that are done have been quite biased and a lot of the new studies are usually on the negative side of gaming. Results of people over-gaming or a lot of the stuff that's usually in a game will make the news like Grand Theft Auto is one that is almost always on the news. And I just want to put into light that the gamers are all not these stereotypes that people put them up to be. We do vary person-to-person.

CHAPTER V DISCUSSION

This study was conducted to explore the common experiences among MMORPG players who play at potentially problematic levels. There were two central research questions in this study: what is problematic gaming among college students and what are the common experiences of potentially problematic online gamers in college? The study aimed to help more clearly define problematic gaming, specifically Internet Gaming Disorder (American Psychiatric Association, 2013), by highlighting the most important features that emerged from the data. In this chapter, I compare and contrast the results of this study to the literature and discuss new contributions added to the literature. To maintain a clearer organization of the data, the results are compared to the literature and discussed within each major cluster. This organization also allows a clear flow in addressing the second research question pertaining to the common experiences of MMORPG players who play at potentially problematic levels. Then the most representative data of defining problematic online gaming is coalesced and compared to the *DSM-5* conceptualization of Internet Gaming Disorder to address the first research question aimed at enhancing our understanding of problematic gaming. Finally, the limitations, implications for practice, and implications for research are discussed.

Prior to discussing the findings, it is important to reiterate the theoretical framework of this study. Social constructivism and post-positivism were both theoretical paradigms underlying the study and consensual qualitative research (CQR) allowed both paradigms to work collectively (Ponterotto, 2005; Stahl et al., 2011). That is, problematic gaming is a concept socially constructed, in part, by social and cultural norms that largely view playing games as a waste of time or a violation of norms (Yee, 2014). At the same time, there has been evidence to suggest problematic gaming is conceptually similar to other addiction-related disorders and may share similar biological markers (Thalemann, Wolfling, & Grusser, 2007; Weinstein, 2010). Therefore, I maintained the possibility of the post-positivist view that there may be an objective truth to find in relation to the combination of individual differences in people's susceptibility to play at problematic levels and particular environments or contexts that increase play. In addition, the theory of emerging adulthood provided a theoretical basis for selecting the participants in this study. Emerging adulthood encompasses the gap of time between adolescence and reaching typical milestones marking adulthood in western cultures (Arnett, 2000a; 2004; Arnett & Tanner, 2006). Emerging adulthood is a typical development period for college students and marks a time of instability, new-found autonomy amidst a lack of imposed structure, and becoming hedonistic (Arnett, 2004; Arnett & Tanner, 2006; Sussman & Arnett, 2014). These factors along with ease of accessibility and tolerance of risky behavior during emerging adulthood can increase the risk of college students playing at problematic levels (Sussman & Arnett, 2014). Therefore, traditional aged college students were one aspect of creating a homogeneous sample in this study.

Characteristics of Online Gaming

The sample in and results of this study were consistent with many of the predictive factors discussed in the literature. For example, 90 percent of the sample was male (Willoughby, 2008). Elliott et al. (2012) found evidence that being Asian was associated with problematic play. However, this sample was 10 percent Latino, 30 percent Asian, and 60 percent White. In relation to the first research subquestion (i.e., how did participants become involved in online gaming?), the participants reported having histories of previous video game use and interest in fantasy prior to engaging in online gaming providing further evidence that early computer game use is a predictor of frequent game playing (Douglas et al., 2008; Willoughby, 2008). Every participant in the current study also discussed being introduced to online games through social ties suggesting that game recommendations made from family and friends helped support their decision to play an MMORPG (Fang et al., 2009).

In terms of the second research subquestion (i.e., what game-related activities did participants commonly engage in?), many of the results were consistent with the literature. Within the game, participants primarily engaged in professions, player versus player (PVP) combat, quests, and dungeons which was consistent with player preferences for MMORPGs reported in previous studies (Achterbosch et al., 2008; Kelly, 2004). Consistent with the theory of emerging adulthood, each participant reported spending large periods of time alone and utilized that alone time to play online games (Arnett & Tanner, 2006). Participants had a mean play time of 37.72 hours across one week. Even though this number exceeds the reported averages in the literature ranging from 17.46 to 25.17 (Billieux et al., 2013; Cole & Griffiths, 2007; Griffiths et al., 2004; Hussain &

Griffiths, 2008; Hussain & Griffiths, 2009; King & Delfabbro, 2009), participants were purposely screened using the Game Addiction Scale (Lemmens et al., 2009) and were required to play at least a minimum of 20 hours a week meaning they were more likely to play at above average rates. Participants play time also reflected the typical experiences of emerging adults having few daily obligations and being able to spend more time focused on themselves (Arnett, 2004; Arnett & Tanner, 2006). The participants in this study frequently played in the evening, which has been suggested to be the most frequently played time of the day (Wood et al., 2007). Five participants played between 7 and 10 times a week, which was consistent with 39% of a surveyed sample by Hussain and Griffiths (2008). Five participants played between 11 and 13 times a week, which was only consistent with two percent of their sample. These data illustrated that the participants played at above average rates. In addition, the participants often played with real-life friends and family and discussed games with their friends outside of the game (Cole & Griffiths, 2007; Kelly, 2004; Snodgrass et al., 2011). Participants also often played with or developed relationships with people they met online (Cole & Griffiths, 2007). These results are consistent with emerging adults typically exploring and developing relationships to determine what qualities they like and dislike in others and how to navigate relationships (Arnett, 2000a; Arnett, 2004).

A new contribution to the literature that emerged related to gaming activity involved the substantial investment participants had in the games. One of the more significant findings was the amount of investment participants put into extracurricular game-related activities such as discussing games with friends. Aside from discussing games with friends, most participants reported reading game guides to learn new

strategies or books that provide more background on the lore of the game. Half of the participants frequently watched livestreams or YouTube videos about the games. Half of the participants also engaged in social activities such as attending tabletop games, conventions, or school gaming clubs. Most importantly, almost all the participants provided descriptions pertaining to being preoccupied with the game when they were unable to play whether they formulated strategies, planned out game activities, or dreamed about the game. These extracurricular activities demonstrated that participants are invested in their games. Two additional categories also demonstrated how invested the participants were in the games: gaming as part of their daily routine and gaming being moderately prioritized. Almost all of the participants had routines that included gaming contingent on what obligations they had for the day. When they had obligations such as class, work, or looming due dates for assignments, almost all the participants prioritized those activities over gaming. Once the obligation was completed, then the game was prioritized again. The investment the participants placed in online gaming highlights that emerging adults focus on exploring their identities (Arnett, 2004) and online gaming is a part of who they are. Coupled with the results that most of the participants reported having prior interest in video games before playing online games, the results suggest video games have been a long-standing part of their identities and emerging adulthood provides additional opportunities to explore their identity around gaming. Participants clearly spend time in activities related to gaming, discuss games with friends, and develop friendships with people that share a mutual interest in the game. This finding suggests participants' identity as gamers may influence other aspects of their developmental identity such as who they are and what they want in life during emerging

adulthood. It is likely that if the participants tried to stop gaming, it would feel as if they were stopping part of themselves.

Participants also described where their gaming activity occurred and what changes they noticed in their gameplay over time. All of the participants played in their bedrooms at college, which may be typical of emerging adults in college considering many college students either have roommates or rent smaller apartments. A finding that may not be as common in the previous literature is the investment in hardware almost all of the participants made. Most participants utilized desktop computers to run the games better and many of the participants built their own computers. In addition, many participants purchased a mouse and keyboard that could improve their performance on the game, headsets or sound systems for communication and improved acoustics, and multiple monitors to have other things up while they gamed. As for changes in gameplay over time, all participants noticed changes as they became more experienced with the game and found how to play the game in a way more individually suited. The changes participants noticed included beginning with slow progression or aimless wandering and transitioning to becoming more goal-oriented or developing a focus on player versus environment (PVE) aspects such as raiding or PVP aspects of the game. Some participants also determined if they wanted to play mostly alone or become more sociable with other players.

Character creation is the next characteristic of online gaming and is notably part of gaming activity as one has to create a character prior to playing the game. However, the character creation domain was kept separate from the gaming activity domain for clearer organization and because there is not much discussion in the literature about the

process of creating a character. Participants in this study provided a thick description of the character creation process. Most of the participants found that naming their character was important whether that meant attempting to maintain the same name across games or creating a name they like. All of the participants planned their characters' appearances or the roles in which they intended to use the character during the creation process. Some of the participants would model their character off of themselves to create a better representation in the game. Other participants were content with having their character mirror them in terms of personality, making decisions, and mannerisms rather than appearance. Almost all of the participants created multiple characters or classes to experience the game in a different way, learn more about the classes of the game, or access more resources than can be gained from one character. It is likely that having an avatar represent these emerging adults within the game provided them with an avenue to further explore their identities and values through making decisions about how they want to be perceived in the game and through reacting to scenarios presented by the game.

One aspect of character creation discussed by participants related to the literature is exploring the frequency of and reasons for creating a character of the opposite gender (Griffiths et al., 2004; Hussain & Griffiths, 2008). The range of participants who have gender swapped some of their characters in the literature was between 57% and 60%, although much fewer people gender swapped their main character (15.5%; Griffiths et al., 2004). Only three of the participants in this study reported gender swapping any of their characters and only one male participant played primarily female characters to get free things from other players. Nine of the participants explained that the gender of their character was an important factor in representing them in the game, and that playing a

character of the opposite gender can reduce their ability to become immersed in the game.

The exploration of gender swapping in this study brought to light an important contribution in that almost all of the participants were aware of, experienced, or may have contributed to sexism within the game. Many participants reported that it is assumed that the character's gender is reflective of the player's gender. Therefore, some participants did not want to play female characters because other players may begin to treat them differently or because friends or acquaintances may react negatively toward them for violating a social norm. Some participants also reported having a belief system that women do not belong within the context of the game or that women violate social expectations when they become too advanced in the game.

The next characteristic of online gaming addresses the third research subquestion: What function did online gaming play in participants' lives? Many of the findings regarding the functionality online gaming serves in the participants' lives were consistent with the literature. In particular, the participants' motivations to play were summed up by social interaction, achievement, and immersion (Fang et al., 2009; Hertlein & Hawkins, 2012; Yee, 2014). In addition, all or almost all of the participants described playing in part because of each of the three motivations suggesting there are positive relationships among these motivations (Herodotou, 2010). Specifically relating to the immersion motivation, two sub-categories emerged suggesting that the fantasy setting of the game, storyline, and providing flexibility in play helped create a more immersive experience for the participants (Kelly, 2004). All of the participants played online games for entertainment or the relief of boredom. Evidence has been found suggesting that boredom

is an antecedent of Problematic Internet Use (PIU; Douglas et al., 2008) and therefore, it is probable that boredom may be a factor in problematic online gaming. Another consistent theme was almost all the participants used gaming as a means to relax or temporarily escape stressors (Hertlein & Hawkins, 2012; Hussain & Griffiths, 2008; Wood, 2008). Most participants also used online games as a source to change their mood (Hussain & Griffiths, 2008; Hussain & Griffiths, 2009). Finally, the participants integrated online games into their everyday lives and the games became a way to spend their free time (Fang et al., 2009; Hussain & Griffiths, 2009).

A few new contributions emerged regarding the functionality of online gaming. One of the more substantial findings was that most of the participants were motivated to play longer after losing to make up for the loss. Online games require player skill and the participants often played worse because they were emotionally upset. The participants seemed to be chasing their losses in terms of status or appeasing others who may have become upset with the participant. This finding may be related to the sub-category, "social comparison, recognition, and competition", that emerged from the social interaction motivation. All but two participants found it important to be recognized in the game in some fashion, especially when they were compared to others regarding their overall status or in PVP competition. Another important function that emerged from the data was all but one participant used online games as a way to maintain current relationships or to create new connections. Although related to the social interaction motivation, this finding illustrates the participants purposively used online gaming to keep in touch with friends who no longer lived nearby or to feel a sense of belonging with friends who shared the same interest rather than just describe an enjoyment in being

able to interact with others in the game. A final finding related to the functionality of online gaming not adequately covered in the literature was four participants perceived online gaming to be similar to traditional sports in that they should practice, become very knowledgeable about the game, and become the best they can at the game.

The final area related to the characteristics of online gaming involves the participants' perceptions of gaming addiction and addresses the fourth research subquestion: how do participants define problematic gaming? All of the participants defined problematic gaming as sacrificing other important areas of life such as socializing and school in order to game (Oggins & Sammis, 2012). Most participants also defined problematic gaming as experiencing a loss of control which is consistent with the conceptualization that a component of addiction is an impairment of impulse control (Karim & Chaudhri, 2012).

Participants provided new contributions regarding personal awareness of problematic play. Based on the screening procedure and scores on the Game Addiction Scale (Lemmens et al., 2009), each participant would be considered to play at problematic levels using our current understanding of game addiction. Most of the participants identified periods of time in the past where they gamed at problematic levels or identified particular problem areas in their lives (e.g., social lives, attending class) resulting from online gaming. However, seven of the participants did not consider themselves to game at problematic levels at the time of the interviews. Instead, they considered themselves to be involved in gaming but have made sufficient changes (e.g., maintain an adequate social life, work out, prioritize school work) to counteract any negative effects gaming may have on them. This finding brings into light the difficulties

of differentiating high involvement from dysfunctional use (Billieux et al., 2013) because the finding may suggest a lack of awareness into personal problematic play or the participants are functioning well enough that gaming is not sufficiently creating problem areas.

However, there is a contradiction in the data between the seven participants reporting that online gaming was not a problem and reporting twice as many negative effects of gaming than positive effects. This contradiction suggests participants are unaware of the full extent of how gaming affects them negatively. Addiction-related disorders are typically ego-syntonic, at least initially, where the substance or behavior is consistent with the person's view of the self and is perceived as pleasurable (Potenza, Koran, & Pallanti, 2009). Therefore, it more difficult for people experiencing addiction-related disorders ego-syntonically to fully perceive the negative effects a substance or behavior is having on them. As such, the participants in this study might be comparable to functional drinking where a person continues to engage in the major functions in life such as work although other aspects of life may suffer such as one's family life or health. In the case of the participants, they considered the most important goal in their lives to be completing school and mostly kept up on their academic work. In that way, they appeared to be high-functioning despite being heavily involved in online games but they often experienced consequences such as making sacrifices or hurting relationships to maintain the lifestyle. This discrepancy can create some ambivalence about reducing game time. Clinicians will often use motivational interviewing for someone who is ambivalent about changing behaviors that are interfering with his or her goals (Miller & Rollnick (1991). Motivational interviewing can help a person focus on how the consequences of his or her

current behavior conflicts with personal values by amplifying the discrepancy (Miller & Rollnick, 1991). Taken together, it is very probable that people experiencing problematic gaming are similar to people experiencing substance use disorders in that they might have some awareness of problems caused by the behavior but do not experience the problems as ego-dystonic and likely lack a desire to reduce or quit the behavior.

The participants also clarified the informal meaning of the term addiction used for games. Almost all of the participants explained that a game described as addicting means it is fun and may provide an immersive experience. They often emphasized that using addiction as a slang term is a function of language growing and does not refer to the negative aspects of an addiction.

Self-Descriptions

The participants in this study provided descriptions about themselves in relation to their mental health, what provides feelings of satisfaction, and their personality characteristics. In addressing the fifth research subquestion (i.e., what mental health issues did participants report experiencing?), half of the participants reported experiences with depression, which was one factor of psychosocial well-being associated with PIU among MMORPG players (Caplan et al., 2009). Four participants experienced anxiety, with three of them having symptoms aggravated enough to cause some distress. Four participants denied any mental health issues, and family histories of mental health issues were also uncommon. Only four of the ten participants reported a family history of mental health issues related to bipolar disorder, childhood issues, and Pick's Disease. In terms of substance use, all the participants used substances. However, across the participants, substance use was rarely pronounced. Substance addiction has been

associated with PIU among MMORPG players (Caplan et al., 2009), and there was some evidence suggesting substance use disorders among the participants in this study. In particular, one participant reported being addicted to marijuana since the eighth grade but was one month clean at the time of the interview. He also used tobacco. Another participant frequently smoked marijuana, potentially engaged in binge drinking once or twice a month, and used psychotropic medication. A third participant may have engaged in binge drinking once or twice a month, chewed tobacco, and drank a two liter of Mountain Dew every day or two. A fourth participant may have engaged in binge drinking weekly. Two additional participants also used tobacco. These results illustrate that many emerging adults use substances, especially alcohol, during this developmental period in response to socializing and being encouraged to engage in more risky behavior (Arnett & Tanner, 2006; Sussman & Arnett, 2014). Substances are rarely used at the same levels prior to or following emerging adulthood or it may be indicative of a problem or poor mental health (Arnett & Tanner, 2006). Taken together, the results suggest that mental health and substance use issues may accompany problematic gaming in some cases but are not an adequate explanation for the behavior.

The next area participants described about themselves was what provided them with a sense of accomplishment. A deficient reward system has been theorized to underlie addictive behavior (Blum et al., 1996; Weinstein, 2010). As such, people will engage in behavior or use substances as a means to compensate because everyday life will not provide adequate satisfaction. The descriptions the participants provided in this study did not add credence to the deficient reward system theory. They provided descriptions that sounded typical for emerging adults in college such as experiencing

satisfaction when they met their goals, made their parents proud, or did well in school. Most of the participants found more satisfaction from real-life accomplishments than in-game accomplishments mostly because of real-world consequences. However, it is unknown how much of their reports were based on genuinely experiencing a greater sense of accomplishment in real-life versus having an internalized belief that gaming is a waste of time (Yee, 2014). Four participants did find real-life accomplishments and in-game accomplishments to feel very similar. Only one of those four participants often found in-game accomplishments to feel better, which may relate to his professional gaming experiences. Additional experimental studies are needed to test the theory, but the qualitative data in this study does not add support to the theory.

The final area related to self-descriptions involved personality characteristics, and research has provided evidence that players playing at problematic levels may have particular personality characteristics. For example, problematic play had a negative correlation with agreeableness, extroversion, and conscientiousness and a positive correlation with neuroticism when correlated with the five-factor model (Peters & Malesky, 2008). Introversion has also been related to problematic play (Caplan et al., 2009). Consistent with the literature, it was typical of the participants to report having introverted qualities and sometimes, a level of discomfort socializing in real-life. However, almost all of the participants frequently socialized within the game, and three participants described themselves as having extroverted qualities such as being outgoing or enjoying meeting new people. Inconsistent with the literature, almost all of the participants described having agreeable qualities related to maintaining social harmony. It is possible the online environment is a place that makes it easier for players with

introverted and agreeable qualities to establish connections or interact in a more meaningful way than small talk. In addition, participants typically enjoyed joking around and thought of themselves as being funny. About half of the participants reported qualities of conscientiousness which may help account for the low negative correlation in the literature because many of the participants enjoyed having unstructured game time. However, they also prioritized other things above gaming when needed and a certain level of conscientiousness is likely needed to successfully navigate college. Participants typically were also aware of less desirable traits they possess (e.g., overly stubborn, argumentative) or others' negative perceptions of them (e.g., being called annoying, irresponsible, bitchy). However, participants did not provide many self-descriptions related to traits of neuroticism or openness.

Consequences of Online Gaming

The sixth research subquestion was what effects did online gaming have on participants' lives? There were three primary consequences of playing online games for the participants consisting of positive consequences, negative consequences, and time loss which can be positive or negative (Wood et al., 2007). Related to positive consequences, almost all of the participants experienced enhanced relationships with childhood friends, roommates or other local friends, and online friends from around the world from online gaming. This result suggests online gaming helped the participants enhance some real-life relationships and build new relationships online (Cole & Griffiths, 2007; Hussain & Griffiths, 2008; Hussian & Griffiths, 2009; Smyth, 2007). They were also able to maintain relationships with friends who no longer lived nearby (Herodotou, 2010). Participants were typically satisfied with their current social lives suggesting most

players do not have most of their social needs met through online games (Hussain & Griffiths, 2008). The participants also used online games as an opportunity to learn and develop skills (Hussain & Griffiths, 2009). Participants reported learning various things including historical events that were used in games, different cultures around the world, information from different fields from players with advanced degrees, and more self-awareness. They reported developing skills such as improved verbal language and grammar, typing speed, leadership, communication, and competence in interacting with others. A new contribution regarding positive consequences resulted from four participants' reports that online gaming influenced their major and career paths, often aiming to work within the gaming industry. This finding may suggest video games can influence people to pursue STEM related areas of study.

There were also many consistent findings with the literature for negative consequences resulting from playing online games. All of the participants reported opportunity costs for playing online games. Consistent with the literature, participants often sacrificed hobbies, exercise, academic performance, social opportunities, health, and sleep (Achab et al., 2011; Douglas et al., 2008; Griffiths et al., 2004; Hertlein & Hawkins, 2012; King & Delfabbro, 2009; Smyth, 2007). Participants also reported missing obligations such as attending class or attending to work. Some participants reported giving up money to play while having a limited income. Another consistent finding is that all of the participants have had experiences where their engagement in online gaming has negatively affected real-life relationships (Cole & Griffiths, 2007). The extent of how negatively relationships were affected varied among participants including losing non-gaming friends, breaking up with romantic partners, and

disappointing parents. A final area consistent with the literature was the finding that participants typically dealt with negative perceptions of gaming (e.g., gaming is a waste of time; Yee; 2014) whether that negative perception originated from another person or has been internalized by the participants.

Some of the other findings were only partially consistent with the literature. For example, almost all of the participants experienced some level of pressure to play whether that pressure extended from other people or themselves. Evidence has suggested the social pressure to game frequently in Korea is based on cultural norms to play well and be accepted among peers (Chee, 2006). However, most of the participants in this study explained the level of pressure they experienced was relatively brief from others and they usually could say no without many negative reactions. This study was based in the U.S., as compared to Korea, and the individualistic culture in the U.S. may help account for the lower level of pressure the participants experienced from others to play. The pressure a minority of participants placed on themselves was often in the context of being included with friends or feeling a desire to play. The participants also answered questions related to consequences resulting from underperformance or too short of play duration. Short play durations were typically found to have less severe consequences mostly amounting to not reaching desired game goals. Underperformance appeared to carry greater consequences more similar to what was described by Chee (2006) in that the participants may be excluded from playing with their friends, kicked out of groups, or even yelled at, sent hateful emails, or belittled on forums. The findings in this study suggest social pressures to play based on cultural norms among gamers in the U.S. are less pronounced than in Korea but may still carry negative social consequences.

Another finding partially consistent with the literature was related to research that suggests a link between video game violence and aggressive behavior (Anderson & Dill, 2000; Ballard & Wiest, 1996; Gentile et al., 2004; Irwin & Gross, 1995; Krahe & Moller, 2004; Wallenius & Punamaki, 2008). This discussion addresses the final research subquestion: What was the role of aggression in participants' game play? All of the participants experienced anger related to online games and almost all of the participants frequently experienced that anger. Some participants described their anger as being worse when they were younger. Six participants had experiences with directing the anger inward and containing it and seven participants had experiences with directing their anger outward toward others. That means three participants had experiences with both directing anger inward and outward. While directing anger outward, many participants described having bursts of yelling; becoming more irritable towards parents, friends, or others online; or throwing controllers. Whether the findings in this study support the literature depends on how aggression is defined. If aggression is defined as reactive verbalized anger such as yelling or cursing, increased cardiovascular reactivity, or throwing a controller (Ballard & Wiest, 1996; Irwin & Gross, 1995), then participants provided evidence supporting increased aggression from playing online games. However, if aggression is defined as reduced prosocial behavior or accepting aggressive norms (Anderson & Dill, 2000; Funk et al., 2004; Krahe & Moller, 2004; Sheese & Graziano, 2005), then the findings in this study offer little support because many of the participants provided self-descriptions related to the trait of agreeableness.

The final topic related to the consequences of playing online games is time loss. Researchers have found evidence that time loss occurs in almost all online gamers

regardless of their frequency of play and almost half of gamers frequently experience it (Wood et al., 2007). Unsurprisingly, all of the participants in this study frequently experienced time loss. Most of the participants also used strategies to avoid losing track of time such as keeping a clock in view and constantly check it, setting an alarm, setting game goals to achieve and then stop, and using physical reminders such as hunger or thirst (Wood et al., 2007). A unique contribution this study adds is the inclusion of flow to help explain time loss. Flow is a state of being where action and awareness merge and only the activity remains in awareness, anxiety about losing control ceases, one's sense of time is altered, and the activity becomes intrinsically rewarding (Csikszentmihalyi, 2014). Intrinsic motivation for playing online games has been associated with problematic play (Wan & Chiou, 2007). Almost all of the participants described experiences of being disconnected from their surroundings by varying degrees because they were immersed in the game. For some participants, they described missing phone calls, text messages, and emails while they played. For other participants, they described being unaware a friend has come over and has been talking to them or that the sun has set and family went to bed. These experiences suggest a merging of action and awareness to the degree only the game remained in awareness. In other words, the participants were experiencing a flow state. Games have been designed to incorporate many of the characteristics needed to achieve flow (Murphy, 2011). This suggests achieving a flow state in an online game may be relatively easy and frequently sought after when the participants' number of hours played and frequency of time loss experienced are taken into consideration. Therefore, it may be likely flow experiences underlie problematic online gaming (Csikszentmihalyi, 2014; Khang et al., 2013).

Defining Problematic Gaming

Problematic gaming continues to lack a consensus on a definition in the literature. Certain results from this study may aid in our understanding of the most important features of problematic gaming. I selected 10 features from this study worth considering in defining problematic gaming. Many of these results are well supported features of addiction in the literature whereas the remaining suggested features were selected solely from this study. The results are also compared to the *DSM-5* criteria for Internet Gaming Disorder (American Psychiatric Association, 2013). In addition, I discuss components often cited in the literature and criteria for Internet Gaming Disorder that were not supported by this study.

The first characteristic is *salience* (Griffiths, 2005; Karim & Chaudhri, 2012; Oggins & Sammis, 2012). Griffiths (2005) developed a components model of addiction containing six common components that may make up all addiction-related disorders. The first component is salience where the activity dominates thinking, feelings, and behavior. All of the participants in this study had involvement with game-related activities outside of playing the game. These activities included having their thoughts preoccupied with the game, discussing the game with friends, reading game guides or literature, watching livestreams or videos of games, and attending social gaming events. The *DSM-5* includes a diagnostic criterion for preoccupation with Internet games (American Psychiatric Association, 2013). However, the results of this study provide evidence that preoccupation is one component of salience and cravings and behavior should also be considered as suggested by Griffiths (2005).

The second characteristic is *sacrifices or opportunity costs*, which is similar to the literature pertaining to life interference (Grant et al., 2010; Oggins & Sammis, 2012) and to conflict in the components model of addiction (Griffiths, 2005). The most common opportunity costs resulting from this study were limited hobbies, exercise, physical health, sleep, academic performance, social opportunities, and missing obligations. The *DSM-5* touches on sacrifices in two criteria: (1) "loss of interests in previous hobbies and entertainment as a result of, and with the exception of, Internet games" and (2) "has jeopardized or lost a significant relationship, job, or educational or career opportunity because of participation in Internet games" (American Psychiatric Association, 2013, p. 795). Again, these descriptions are not inclusive and can leave out important aspects. For example, some participants reported that playing video games has been their primary hobby since they were young and they have not needed to give up other hobbies to play. As one participant stated, "I've always enjoyed playing console games, watching anime, watching League of Legends…so no, I don't think I've given up any other hobbies." However, as in this participant's case, his hobbies have been limited to watching or playing games and watching anime. Therefore, the criterion can mistakenly not be applied when it is applicable. In addition, both of the criteria neglect to include other important aspects of life such as exercise, sleep, academic performance, less healthy meals, or physical health. One suggestion is to include additional opportunity costs into the first criterion and leave the second as is. The second criterion is also related to the next characteristic worth considering.

The third characteristic involves *damaged relationships*. This characteristic is related to giving up social opportunities because foregoing too many social opportunities

with friends or loved ones could eventually lead to damaged relationships. However, this characteristic focuses on lost or damaged relationships rather than just foregoing social opportunities such as a chance to attend a party or go out to eat in order to play a game. This characteristic is captured well in the second criterion listed in the previous paragraph. As mentioned above, the second criterion could be left as is to maintain a separation of events that constitute major sacrifices from events in the first criterion that have less short-term consequences but potentially devastating long-term consequences.

The fourth characteristic involves *frequent attempts to experience immersion and flow states*. Experiences of flow appear to be a necessary condition underlying addictive behavior (Csikszentmihalyi, 2014; Khang et al., 2013). That is, it seems unlikely that someone who is unable to feel immersed in a game will feel compelled to play it. Many of the participants described creating their characters to be a reflection or extension of themselves within the game suggesting they were seeking an immersive experience beginning with the character creation process. In addition, most participants described that engaging storylines, fantasy settings, and flexibility in play were compelling characteristics to play online games. The immersive experience can also be a means to achieve escape or modify one's mood which is the next characteristic.

The fifth characteristic involves *playing to escape or modify mood or affect*, usually to alleviate a negative mood (Grant et al., 2010; Oggins & Sammis, 2012). The *DSM-5* combines escape and mood modification into one criterion (American Psychiatric Association, 2013). The components model of addiction also combines escape and mood modification suggesting people may play to experience arousal or a tranquillizing escape (Griffiths, 2005). The results of this study support keeping these factors together. All of

the participants used online gaming as a source of entertainment that helped relieve feelings of boredom. In addition, almost all of the participants used online gaming as a means to relax from stress or temporarily escape stressors. Six participants used online gaming to feel good or help alleviate feelings of depression. These results suggest the most common reasons for escape and mood modification are boredom, reducing stress, and alleviating negative moods such as depression. However, games can have an unintended consequence of producing a negative mood, such as anger or irritability, rather than alleviate it. All of the participants experienced anger resulting from playing online games. Therefore, the *DSM-5* criterion would be more inclusive and clearer if the criterion stated Internet games are used to escape or relieve boredom, stress, or a negative mood, or often leads to arousing states such as frequent anger. Online gaming frequently producing anger is related the next characteristic of chasing losses.

The sixth characteristic is *chasing losses*. Seven participants provided descriptions related to playing longer after becoming upset after losing. They were attempting to make up for the loss and often played worse which led to more losses. This finding is very similar to the diagnostic criteria of chasing losses for Gambling Disorder in the *DSM-5* (American Psychiatric Association, 2013), although gambling is related to trying to win money back. When the participants chased losses, it appeared related to overcoming a challenge, regaining their identification in being competent in the game, or appeasing game partners who have become upset with them. Most of the participants described social comparison and recognition in the game as important suggesting that playing well is a driving factor to play, which is the next characteristic.

The seventh characteristic to consider is *pressure to play well*. Most participants discussed receiving relatively mild pressure to play from others. However, within the context of underperformance, participants described consequences related to being excluded from playing with real-life friends or being kicked out of groups. They also described being belittled or spurned verbally, via chat text, or through email or forums, but that was mostly surrounding player versus player combat in games such as League of Legends. To play well, one must often play enough to prevent skill degradation and may be an area worth consideration.

The eighth characteristic worth consideration is *investigating if a player's social network primarily consists of friends related to the game*. Participants described many social-related factors in this study (e.g., the social environment is a prime motivator for playing, introduced to online gaming through social ties). In fact, almost all of the participants experienced some enhanced relationships from online gaming and most were satisfied with their social lives; however, these experiences may be temporary. If a player's social network primarily consists of game-related friends, then the person risks losing their network of real-life or online friends if life changes occur. Games are not expected to have long lives and players quit even in games that have persisted such as World of Warcraft. Unless members of the same social network decide to transition to a new mutual game, members may likely lose contact with one another. In addition, real-life friends may fade away as new transitions occur (e.g., work, having a family) if online gaming is the primary way in which friends share experiences.

The ninth characteristic is *investigating how extensive gaming has become routine in everyday life*. Almost all of the participants described gaming as being part of their

daily routines, being a major part of their lives, and a primary way to spend free time. In addition, almost all of the participants placed gaming among their priorities, although they usually prioritized other things such as work and class over gaming. Having online gaming as part of one's lifestyle is not in and of itself predictive of problematic gaming; however, it may be a necessary component.

The tenth characteristic is a *loss of control* (Grant et al., 2010; Oggins & Sammis, 2012). Griffiths (2005) described loss of control as relapse in his component model of addiction suggesting people will return to previous patterns after a period of control. Time loss has been related to a loss of control by playing longer than intended (Hussain & Griffiths, 2009), and it allows for a temporary escape that can become negative when it leads to missing things or sacrificing things (Wood et al., 2007). In other words, a loss of control is related to the immersive experience and opportunity costs. It is a characteristic six participants used to define problematic gaming in that someone is unable to stop playing. *The DSM-5* criterion for a loss of control is "unsuccessful attempts to control participation in Internet games" (American Psychiatric Association, 2013, p. 795). The criterion captures loss of control except for when someone has not attempted to control his or her participation. As stated previously, many of the participants included online gaming as a part of life and saw little need to reduce game time. One suggestion is to identify when someone is unable to quit a gaming session when there is a need to attend to other things such as work or family needs.

There are a few characteristics proposed for problematic gaming that were not supported by this study. Two characteristics often associated with behavioral addictions are tolerance and withdrawal (Grant et al., 2010; Griffiths, 2005; Oggins & Sammis,

2012). Tolerance is the need to increase play time to achieve previous mood-modifying effects and withdrawal is unpleasant feelings that occur when an activity is discontinued or reduced (Griffiths, 2005). These two features are common among severe substance use but little evidence was found for them in relation to problematic gaming in this study. Specifically for substance use, tolerance occurs when the body no longer has the same response to a substance so higher doses are needed (Erickson, 2007). Neurons may become less sensitive to the substance's effects and the body may develop more efficiency in breaking down the substance (Erickson, 2007). Withdrawal occurs when the body adapts to the presence of a substance that has been used regularly over time and without the substance, the person cannot function normally (Erickson, 2007). Withdrawal most commonly occurs with the use of depressants such as opioids and alcohol and produces the opposite effects of the substance (Erickson, 2007). Withdrawal can be extremely uncomfortable and, in the case of alcohol, can be fatal through seizures (Erickson, 2007). If tolerance and withdrawal are applicable to problematic gaming, these features would be differentiated from substance use by being much milder. However, the participants responses in this study were often counter to tolerance and withdrawal. In terms of tolerance, the participants adjusted their play time around their availability and often described heavier periods of game play when they were younger. Participants also reported that new content helps them to play longer and become more immersed suggesting that doing the same content over time may reduce play time. These results seem counter to developing a tolerance, which would suggest increasing amounts of play over time. In terms of withdrawal, only one participant described having a need to play and did not "feel right" if he did not play. However, incentive salience may better

account for withdrawal. Realistically, if anyone has a strong desire to do something and something or someone is preventing the person from doing it, feelings of irritability are common. That feeling the participant described may also have been a craving which is accounted for by salience.

Aside from withdrawal and tolerance, the *DSM-5* lists deceiving other people regarding the amount of time played as a criterion (American Psychiatric Association, 2013). The participants in this study were forthcoming about their play time by tracking it in their journals. Not one participant described attempts to deceive others regarding their play time. They typically explained that their parents or close others were aware of their gaming habits.

A final consideration not supported by this study is that problematic video game playing stems from underlying mental health issues (Wood, 2008; Yee, 2014). Many of the participants did identify experiencing varying levels of depression and anxiety but four participants denied any mental health issues. This result suggest that co-morbid conditions are a likely possibility when working with someone with Internet Gaming Disorder but it is highly unlikely that a co-morbid condition always perpetuates excessive gaming.

Limitations

The first limitation in this study was a limited sample size, which is an inherent limitation in all qualitative research and affects the generalizability of the results. A sample of 10 participants was used. This restriction was necessary due to the labor intensive data analysis, which included interviews, transcriptions, reading transcripts multiple times, and coding the data. Whereas a larger sample may or may not have

brought additional information to light, using a larger sample would have rendered the study infeasible because of limited resources. Therefore, a smaller sample was used to develop an understanding of the common experiences in the phenomenon of problematic gaming at the risk of missing some less common data. However, using 10 participants fell within the suggested range by Hill et al. (1997), and saturation of the data was achieved by using homogeneous sampling.

The second limitation in this study, related to the limited sample size, was the homogeneous recruitment from one university. It is arguable that students at this large, public university were representative of other college students, but there may be differences that exist between students at different universities. Therefore, the external generalizability of this study was reduced by maintaining the internal generalizability (Maxwell, 1992). That is, the sample was adequate to generalize to other students at the institution under study, but the ability to generalize results to other institutions was limited. This limitation was offset by the rich understanding of problematic gaming achieved in this study by providing enough details that the results from this study can be tested with students from other institutions.

A third potential limitation in this study was the possibility that the participants were functioning well enough that their involvement in online gaming did not sufficiently create problems for them. The screening process was developed to identify players who were likely playing at problematic levels based on a measure adapted from other addiction-related disorders along with hours played. However, a premise of this study was that problematic gaming is ill-defined in the literature and it is possible participants were misidentified as problematic gamers by using the literature to select participants. It

is also possible participants were not fully aware of the ways online gaming created problems for them, which is common with addiction-related disorders.

Implications for Practice

The study has important implications for practicing counseling psychologists and other mental health professionals by providing meaningful information on the common experiences of gamers who play at potentially problematic levels. First, psychologists have an ethical responsibility to better understand the individual and cultural differences of their clients. As can be seen in this study, online gaming is a large part of the participants' identities. As such, psychologists should carefully examine any personal biases pertaining to video games being a waste of time or negative stereotypes of online gamers as it appears from the results of this study that many gamers have already internalized these negative messages. Mental health professionals reinforcing these messages could cause harm to clients. It is also apparent from this study that the participants consider gaming to be an important part of life and simply quitting may not be a helpful suggestion or an appropriate therapeutic goal. Instead, mental health providers and clients may collaborate to develop initial therapeutic goals focused on moderation and expanding interests and hobbies. If mental health providers leave their biases unchecked, they may inadvertently damage the therapeutic relationship and potentially lose the opportunity to help a client struggling with problematic gaming if a sense of alliance cannot be regained.

Second, this study provides additional information that may aid in developing a better diagnostic understanding of problematic gaming. Counseling psychologists are trained to utilize research to inform practice and as such, this study can contribute to

psychologists establishing competency in working with people presenting with problems resulting from online gaming. The information from this study can help mental health providers better identify key aspects of problematic gaming in remedial work and provide more accurate education in outreach efforts in preventive work. As can be seen from this study, particular characteristics currently emphasized (e.g., tolerance, withdrawal, deception) are not supported while other characteristics are not considered diagnostic criteria (e.g., flow, chasing losses, daily integration of gaming) but need further exploration. Accurate diagnosis can help providers determine the severity of problematic gaming and aid in developing interventions.

Implications for Future Research

The study also provides important implications for broadening our understanding and knowledge of behavioral addictions, specifically for defining problematic gaming, along with providing directions for future research. As Internet Gaming Disorder continues to be considered for inclusion as a diagnosis in the *DSM-5*, it is imperative to develop a better understanding of the disorder. The results of the study identified particular characteristics that were common among the participants that may be indicators of problematic online gaming. There are several interesting findings that can benefit from replication and being included in future research. Specifically, preoccupation is one component of salience along with cravings and specific behaviors, many of which were identified in this study. Loss of interest in previous hobbies is one component of opportunity costs in addition to the many opportunity costs illustrated by the participants. These features would benefit from future studies to determine the replicability and generalization of these additional features to other gamers who play at potentially

problematic levels. Future studies should also further investigate the relationship flow has with problematic online gaming. Another area for further exploration is replicating how frequently online gamers become angry with the game and how often online games are used to relieve boredom and stress. This replication can provide evidence for revising the escape and mood modification criteria to include these components. A unique result that requires further investigation is chasing losses. This result is established for Gambling Disorder but it has not been attributed to online gaming in the literature. Research is also needed to identify the predictive power of three characteristics for problematic online gaming: pressure to play well, having a primarily game-related social network, and incorporating a daily routine to play.

Future research should also focus on women's experiences of playing online games. Only one woman participated in this study and some of the results merit further investigation. The most important finding was her experiences with sexism within the game. Male participants were aware of sexism in the game such as knowing they would be treated differently if they played a female avatar. However, the female participant personally experienced sexism including being harassed by male players and dealing with implicit messages that she is less competent at playing the game because she is a woman. Additional research is needed to shed light on women's experiences of sexism in online gaming. Another unique finding for the female participant was she was the only participant who expressed little enjoyment of the social aspects of the game and preferred to play alone, in part, due to a desire to escape social oppression taking place in the game. The game was her first MMORPG and she began the game feeling obligated to join a guild but transitioned to play solo. As such, her gaming activity was mostly focused on

questing rather than engaging in group-oriented activities. She had fewer characters than the male participants and she also was the only participant who recorded in her journal playing less than 20 hours in a week suggesting she was less invested in online gaming than the male participants. She also reported experiencing anger less frequently than the male participants. Finally, online gaming did not enhance any of her relationships as it did for all the male participants. Her experiences regarding playing alone, mostly questing, creating fewer characters, playing fewer hours, experiencing less anger, and not experiencing any enhanced relationships from online gaming may or may not be representative of other female gamers. However, additional research can further illuminate the common experiences of women who play online games.

Conclusion

This study investigated the common experiences of gamers who potentially played at problematic levels and attempted to identify the most salient features that could better define problematic online gaming. The study provided an avenue for participants' voices to be heard in describing their experiences and provided a less biased view of online gaming by including rich narratives of many aspects of their experiences. It also contributes to the ongoing debate in the literature as to what are the key components of behavioral addiction. This study illustrated the difficulties of differentiating between heavy involvement and problematic game play and has hopefully added some clarity to identifying key components for the diagnostic criteria for Internet Gaming Disorder.

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APPENDICES

Appendix A

IRB Expedited Request

Revised 10/10 Ref. #___

APPLICATION TO USE HUMAN RESEARCH SUBJECTS
Purdue University
Institutional Review Board

1. Project Title: Exploring problematic online gaming: A qualitative approach
2. Full Review ☐ Expedited Review ☒
3. Anticipated Funding Source: N/A
4. Principal Investigator *[See Policy on Eligibility to serve as a Principal Investigator for Research Involving Human Subjects]*:

Name and Title	Department, Building, Phone, FAX, E-mail address
Ayse Ciftci, Associate Professor	EDST, BRNG, 765-494-9746, 765-496-1228, ayse@purdue.edu

5. Co-investigators and key personnel *[See Education Policy for Conducting Human Subjects Research]*:

Name and Title	Department, Building, Phone, FAX, E-mail address
Joseph Waters, Doctoral Candidate	EDST, BRNG, (765) 228-1672, N/A, waters2@purdue.edu
Alexandra Broustovetskaia, M.S.Ed.	EDST, BRNG, (317) 777-1095, N/A, abrousto@gmail.com
Stephanie Rose, M.S.Ed.	EDST, BRNG, (937) 532-4914, N/A, sdfireba@purdue.edu

6. Consultants *[See Education Policy for Conducting Human Subjects Research]*:

Name and Title	Department, Building, Phone, FAX, E-mail address

7. The principal investigator agrees to carry out the proposed project as stated in the application and to promptly report to the Institutional Review Board any proposed changes and/or unanticipated problems involving risks to subjects or others participating in the approved project in accordance with the HRPP Guideline 207 Researcher Responsibilities, Purdue Research Foundation-Purdue University Statement of Principles and the Confidentiality Statement. The principal investigator has received a copy of the Federal-Wide Assurance (FWA) and has access to copies of 45 CFR 46 and the Belmont Report. The principal investigator agrees to inform the Institutional

Review Board and complete all necessary reports should the principal investigator terminate University association.

_____ _____

Principal Investigator Signature Date

8. The Department Head (or authorized agent) has read and approved the application. S/he affirms that the use of human subjects in this project is relevant to answer the research question being asked and has scientific or scholarly merit. Additionally s/he agrees to maintain research records in accordance with the IRB's research records retention requirement should the principal investigator terminate association with the University.

_____ _____

Department Head *(printed)* Department Name

_____ _____

Department Head Signature Date

APPLICATION TO USE HUMAN RESEARCH SUBJECTS

9. This project will be conducted at the following location(s): (please indicate city & state)

- ☒ Purdue West Lafayette Campus
- ☐ Purdue Regional Campus (Specify): _____
- ☐ Other (Specify): _____

10. If this project will involve potentially vulnerable subject populations, please check all that apply.

- ☐ Minors under age 18
- ☐ Pregnant Women
- ☐ Fetus/fetal tissue
- ☐ Prisoners Or Incarcerated Individuals
- ☒ University Students (PSYC Dept. subject pool ___)
- ☐ Elderly Persons
- ☐ Economically/Educationally Disadvantaged Persons
- ☐ Mentally/Emotionally/Developmentally Disabled Persons
- ☐ Minority Groups and/or Non-English Speakers
- ☐ Intervention(s) that include medical or psychological treatment

11. Indicate the anticipated maximum number of subjects to be enrolled in this protocol as justified by the hypothesis and study procedures: __4000_____

12. This project involves the use of an **Investigational New Drug** (IND) or an **Approved Drug For An Unapproved Use**.

☐ YES ☒ NO

Drug name, IND number and company: _____

13. This project involves the use of an **Investigational Medical Device** or an **Approved Medical Device For An Unapproved Use**.

☐ YES ☒ NO

Device name, IDE number and company: _____

14. The project involves the use of **Radiation or Radioisotopes**:

☐ YES ☒ NO

15. Does this project call for: (check-mark all that apply to this study)

- ☒ Use of Voice, Video, Digital, or Image Recordings?
- ☒ Subject Compensation? Please indicate the maximum payment amount to subjects. $25

  Purdue's Human Subjects Payment Policy Participant Payment Disclosure Form
- ☐ VO2 Max Exercise?
- ☐ More Than Minimal Risk?
- ☐ Waiver of Informed Consent?
- ☐ Extra Costs To Subjects?
- ☐ The Use of Blood? Total Amount of Blood _____

Over Time Period (days) _____

☐ The Use of rDNA or Biohazardous materials?

☐ The Use of Human Tissue or Cell Lines?

☐ The Use of Other Fluids that Could Mask the Presence of Blood (Including Urine and Feces)?

☐ The Use of Protected Health Information (Obtained from Healthcare Practitioners or Institutions)?

☐ The Use of academic records?

16. Does investigator or key personnel have a potential financial or other conflict of interest in this study?

☐ YES ☒ NO

APPLICATION NARRATIVE

A. PROPOSED RESEARCH RATIONALE

- *Describe why you are conducting the study. Identify the research question being asked.*

  The current study is being conducted because our understanding of problematic gaming is based primarily on adapting other addiction-related phenomena and applying those concepts to problematic gaming. This approach can leave gaps in our understanding. Therefore, qualitative research is needed to build a better understanding from the data. Consensual qualitative research will be used in this study to examine the central research question: what are the common experiences of problematic online gamers?

B. SPECIFIC PROCEDURES TO BE FOLLOWED

- *Describe in a step-by-step manner what you will require subjects to do in this study.*

  Participants who are interested in the study will be asked to participate in a brief screening survey. Participants who do not meet the criteria to participate will have any identifiable information deleted from their data. The survey data provided by all participants will be used to describe the participants partaking in the survey. Participants who do meet the criteria to be interviewed will have their data placed in a separate file. Participants will be randomly selected from this file and contacted about the interview. Random selection will continue until 10 participants have agreed to participate. This data file will be securely stored on a flash drive and locked in a cabinet when not in use. Participants chosen to participate in the study will be asked to meet for an in-person semi-structured interview on campus or a Skype interview if an in-person interview is infeasible. They will also be asked to fill out a journal for approximately one week and then participate in an informal interview via telephone or email (i.e., providing any additional information or changes in a typed response). Participants will be given the option to review their own transcript and the

final themes to provide feedback. A debriefing letter (see appendix K) will be provided to each of the interviewees after data analysis has been completed to allow the prominent themes that emerged during the study to be communicated to participants. Participants' contact information will be deleted after the debriefing letter is sent out.

- *Identify all data you will collect.*
  Participants will be screened through a brief online survey. Participants will be requested to provide the name of the massively multiplayer online role playing game (MMORPG) they play, estimate the number of hours they spend on game-related activities each week, answer the Game Addiction Scale (GAS), and provide demographic data (e.g., age, sex, ethnicity, year in college) during the screening survey. In addition, participants who want to be interviewed are asked to provide basic contact information (e.g., email address, phone number, first name). Interview data will be collected via an audio recording. This data will include a history of participants' gaming experiences, what they are currently experiencing, and what meaning they derive from their experiences. The interview will then be transcribed and identifying information will be removed. Field notes of nonverbal behaviors and interpersonal processes will be recorded during or after the interview. A follow-up interview via the telephone or email will allow for further information to be added to their transcript, but audio recordings will not be obtained. Journals will be used to gather participants' play time; reasons for playing; feelings prior to, during, and after playing; consequences to playing; and a section for any other information across approximately one week.

C. SUBJECTS TO BE INCLUDED

Describe:

- *The inclusion criteria for the subject populations including gender, age ranges, ethnic background, health status and any other applicable information. Provide a rationale for targeting those populations.*
  Any students who receive the email inviting them to partake in the screening survey may participate in the survey. The inclusion criteria for interviewees is they must be current college students (aged 18 to 29), play a MMORPG, spend a minimum of 20 hours a week on game-related activities, and meet at least four of the seven criteria on the Game Addiction Scale. Interviewees are being selected on these criteria to provide a homogeneous sample.

- *The exclusion criteria for subjects.*
  Participants who do not meet the above inclusion criteria will be excluded from participating beyond the screening survey.

- *Explain the rationale for the involvement of any special populations including prisoners.*

College students are the focus of the study because they make up a large portion of MMORPG players. In addition, college students are a vulnerable population that spends much time alone. Some students are at risk of developing Internet Gaming Disorder and more research needs to be conducted to better understand this phenomenon.

- *Provide the maximum number of subjects you seek approval to enroll from all of the subject populations you intend to use and justify the sample size. You will not be approved to enroll a number greater than this. If at a later time it becomes apparent you need to increase your sample size, you will need to submit a Revision Request.*
  The maximum number of participants to partake in the screening survey is 4000. The maximum number of participants to be interviewed from those who completed the screening survey is 20.

D. RECRUITMENT OF SUBJECTS AND OBTAINING INFORMED CONSENT

- *Describe your recruitment process in a step-by-step manner. The IRB needs to know all the steps you will take to recruit subjects in order to ensure subjects are properly informed and are participating in a voluntary manner. An incomplete description will cause a delay in the approval of your protocol application.*
  There will be two recruitment phases. First, the registrar will be asked to send an email to 4,000 random students inviting them to participate in a screening survey asking demographic information and if they play a MMORPG. The email will contain a link to direct interested participants to a page for informed consent for the screening. After participants provide informed consent, they will be asked to provide the name of the MMORPG they play, the number of hours they spend on game-related activities each week, demographic information, and to respond to a 7-item Game Addiction Scale. At the end of the screening survey, participants will be asked if they want to participate in the follow-up interview and to provide a means for the researcher to contact them (i.e., email address and/or phone number). Those eligible to participate will be included in a database. The second recruitment phase will consist of randomly selecting participants from the database. These participants will be contacted via email or telephone. Participants will be informed they have been selected to participate in the study and provided with the informed consent document for interviewees via email or have the informed consent read to them via telephone (see appendix C for recruitment material). Participants will be randomly selected from the database until 10 participants agree to participate by responding to the email or verbally assenting via telephone. Prior to the interview, participants will be asked to review the informed consent again and sign it if they agree. Participants who interview via Skype will still be sent a copy of the informed consent, although they will not sign the consent form. However, the informed consent form will be

reviewed with participants and verbal assent requested prior to the interview beginning.

E. PROCEDURES FOR PAYMENT OF SUBJECTS

- *Describe any compensation that subjects will receive. Please note that Purdue University Business Services policies might affect how you can compensate subjects. Please contact your department's business office to ensure your compensation procedures are allowable by these policies.*

Each of the 10 participants will receive a $25 Amazon.com gift card after their interviews and upon returning their journals. The gift cards will be purchased with personal funds and sent to participants via email.

F. CONFIDENTIALITY

- *Describe what steps you will take to maintain the confidentiality of subjects.*

Participants in the screening survey may provide identifiable information (e.g, first name, email address, phone number) with their survey responses. Participants who do not meet the inclusion criteria to be interviewed will have identifying information deleted from their survey responses. Participants who do meet the inclusion criteria will have their survey data and contact information placed in a separate file to be stored on a thumb drive in a locked file cabinet. Interviews will be audio recorded and transcribed. After the interviews are transcribed, identifying information will be deleted from the transcripts, and each interviewee will be assigned a number (i.e., 1 – 10) to protect confidentiality. A code key will be created that list the assigned numbers, names of the participants, and contact information of the participants. Each participant's materials (e.g., survey data, transcripts, field notes, journals, informed consent form) will have their assigned number written on it. The recorded interviews and code key will be stored in a locked file cabinet. Only the investigators (Joseph Waters and Dr. Ayse Ciftci) will have access to identifiable materials. Two additional graduate students will assist in analyzing de-identified transcribed materials, but they will not have access to any identifiable data. Their role in the study is limited to data analysis.

- *Describe how research records, data, specimens, etc. will be stored and for how long. The IRB generally recommends locked storage, such as a cabinet, for identifiable information. Please note, consent forms signed by subjects, parents and/or legally authorized representatives ARE considered research records.*

De-identified materials (e.g., copies of transcripts) will be available to two additional team members to analyze. However, whenever team members are finished with materials, the materials will be returned to the investigators or destroyed. The investigators will securely store all research records such as the consent forms and code key in locked storage in Beering Hall, room 5173. Audio recordings and the database of eligible

participants (including email addresses and phone numbers) will be kept on a flash drive and locked in the same file cabinet until they are destroyed. All identifiable records will be destroyed after the dissertation is complete except for the informed consent forms and code key. These records will be stored on campus for seven years and then destroyed. All de-identified materials will be kept indefinitely.

- *Describe if the research records, data, specimens, etc. will be de-identified and/or destroyed at a certain time. If records, data, specimens, etc. will be de-identified, address if a code key will be maintained and when, if ever, it will be destroyed. Additionally, address if they may be used for future research purposes.*

  Research records with identifiable information, except the informed consent forms and code key, will be destroyed at the conclusion of the dissertation to allow participants to provide feedback on the results of the study, receive a debriefing letter, and receive compensation. The consent forms and code key will be kept in locked storage on Purdue campus for seven years, at which point, materials will be destroyed. De-identified materials (e.g., transcripts, aggregated results) will be kept indefinitely. All data collected will only be used for the purpose of this study.

G. POTENTIAL RISKS TO SUBJECTS

- *There are always risks associated with research. If the research is minimal risk, which is no greater than every day activities, then please describe this fact.*

  The risks associated with the study include the potential of causing emotional distress in participants. Although participants are at an everyday risk of having their gaming experiences questioned, the intent of this project is to delve deeper. This level of questioning presents an opportunity for participants to discuss potentially embarrassing or painful experiences. Another potential risk to participants is a breach of confidentiality. Safeguards to prevent a breach of confidentiality are explained in section F and will minimize the risk.

- *Describe the risks to participants and steps that will be taken to minimize those risks. Risks can be physical, psychological, economic, social, legal, etc.*

  In the event a participant should become upset, he or she will be provided with available counseling resources. In addition, participants' responses will be de-identified to ensure data cannot be linked to a participant. Finally, the informed consent form will include the purpose of the study, risks, benefits, rights of the participants, data collection methods, how confidentiality will be maintained, and how the data will be used. Participants will maintain rights to review their data, remove their data, and withdraw from the study at any time. The relationship between the researcher and the participants will terminate at the end of the study,

although they will be given a means to contact the researcher if they have any questions or concerns pertaining to the research.

H. BENEFITS TO BE GAINED BY THE INDIVIDUAL AND/OR SOCIETY

- *Describe the possible direct benefits to the subjects. If there are no direct benefits, please state this fact.*
  The benefits for the participants include providing an opportunity for their voices to be heard in the literature concerning problematic gaming and monetary compensation. There are no other direct benefits for the participants.

- *Describe the possible benefits to society.*
  Clinicians and researchers in the field of psychology may gain a better understanding of the diagnostic criteria for Internet Gaming Disorder in the *DSM-5* (2013). Understanding the problematic gaming experience is also the first step to creating effective treatment strategies that could benefit the participants at a future date. That is, clinicians are trained to use an empirical foundation for their practice and this research may provide that foundation for clinicians to work with any clients struggling with problematic online gaming. This research may also benefit researchers who are interested in using the results to further study problematic gaming, particularly in regards to developing efficacious treatments. Game companies may use information from the study to improve the attractiveness of their games or promote safe use of their games.

I. INVESTIGATOR'S EVALUATION OF THE RISK-BENEFIT RATIO

The risks in this study are minimal. The primary risks are potential emotional distress in participants and a breach of confidentiality. Safeguards have been developed to provide distressed participants with information on seeking counseling and to protect confidentiality (see section F). The direct benefits of the study for participants include monetary compensation and providing participants with an opportunity to add their voices to the literature. The benefits to society include developing a better understanding of the experiences of college students who game at problematic levels. This understanding can help inform the diagnostic criteria for Internet Gaming Disorder, future treatments, and future research. Therefore, the risk-benefit ratio seems reasonable.

J. WRITTEN INFORMED CONSENT FORM *(to be attached to the Application Narrative)*

- Submit a copy of the informed consent document in the form that it will be disseminated to subjects. The approved consent form will be stamped with the IRB's approval and returned to you for use.

K. WAIVER OF INFORMED CONSENT OR SIGNED CONSENT

A waiver of signed consent is requested for the online screening survey and for participants interviewed via Skype.

2. For a Waiver of Signed Consent, address the following:

a. Does the research pose greater than minimal risk to subjects (greater than everyday activities)?

The online screening survey does not pose greater than minimal risk to participants. The survey requests demographic data and information concerning online gaming activities. Participants may be asked similar questions during their everyday activities. Interviews via Skype also do not pose greater than minimal risk to participants. The primary risk for participants interviewing via Skype is a breach of confidentiality, and they will be asked to interview at a time when they can be alone.

b. Does a breech of confidentiality constitute the principal risk to subjects?

A breach of confidentiality is the principal risk to participants.

c. Would the signed consent form be the only record linking the subject and the research?

No. Any participant may enter his or her email address, phone number, and first name. The identifiable information will be linked to the survey data. This procedure will allow eligible participants to be contacted for an interview. For participants not interviewed, their identifiable information will be deleted from the data.

d. Does the research include any activities that would require signed consent in a non-research context?

No. Participants during the screening are providing consent by pressing the button to move forward after reading the informed consent. They are then asked to answer 20 brief questions and to provide contact information if they want to be interviewed. For participants interviewed via Skype, the informed consent form will be reviewed with participants, and they will be asked to provide verbal assent that they understand the informed consent document and are willing to proceed with the interview.

e. Will you provide the subjects with a written statement about the research (an information sheet that contains all the elements of the consent form but without the signature lines)?

Yes. Participants are asked to read the written consent prior to participating in the screening survey (see appendix C). Participants will also be asked to read the consent form prior to interviewing via Skype (see appendix G).

L. INTERNATIONAL RESEARCH

This study will only use data collected at the West Lafayette Purdue campus.

M. SUPPORTING DOCUMENTS *(to be attached to the Application Narrative)*

- Recruitment advertisements, flyers and letters.
- Survey instruments, questionnaires, tests, debriefing information, etc.

Appendix B

Recruitment Email for Screening Survey

Subject header: Participants Needed for Online Gaming Study – Earn $25

Dear current student,

You are being asked to participate in an IRB approved study on online gaming. Specifically, I want to interview gamers who regularly play massively multiplayer online role-playing games (MMORPGs) about their experiences. All participants selected for an interview in this study will be given a $25 Amazon.com gift card as compensation for their time.

To participate in this study, you must: (a) be a current undergraduate or graduate student; (b) be 18 to 29 years of age; (c) have played a MMORPG within the last six months; and (d) complete a short, online screening survey (see URL address below). Eligible participants will be randomly selected and asked to participate in a one-on-one interview. The interview will take place on campus and last approximately one to one and a half hours.

This research is being conducted by Joseph Waters (waters2@purdue.edu), a Counseling Psychology doctoral candidate, and supervised by Dr. Ayse Ciftci (ayse@purdue.edu). All identifying information reported (e.g., email address, name) will be deleted at the conclusion of the study and all transcribed materials will be de-identified. Please direct any questions or comments to me via email. This study has been reviewed and approved by the Purdue University's Human Subjects Board (IRB Research Project Number: 1403014682).

If you agree to participate in this study, please click on the following URL address: https://purdue.qualtrics.com/SE/?SID=SV_eVFbVVw7fDnkzTD

Thank you for your participation!

Sincerely,

Joseph Waters, M.A.
Counseling Psychology Doctoral Candidate
Purdue University
Department of Educational Studies
100 N. University St.
West Lafayette, IN 47907
waters2@purdue.edu

Appendix C

Recruitment for Interviewees

(to be sent via email or read over the phone)

Dear _____,

You have been randomly selected to participate in my study investigating the experiences of online gamers. Below is a full description of the research study. If you would still like to participate in this study, please reply and state, "I consent to participate in the study" in the subject line (or orally if read over the phone).

Purpose of Research
The purpose of this study is to better understand the experiences of online gamers who regularly play massively multiplayer online role-playing games.

Specific Procedures
If you agree to participate in this study, we will schedule an interview and meet in Beering Hall. You will be asked to sign this informed consent form prior to the interview. Skype interviews may be conducted as an alternative in rare circumstances. You will then be interviewed for approximately an hour to an hour and a half. The interview will be audio recorded. Following the interview, you will be asked to keep a simple journal that is provided to you for one week on amount of play time; reasons for playing; feelings prior to, during, and after playing; consequences of playing; and any other information you may want to provide. One week after the interview, you will be contacted via telephone or email for an informal follow-up interview. This interview will be unstructured and is only meant to provide you with an opportunity to add any additional information or make revisions to previous statements. Therefore, the follow-up interview will not be audio or video recorded.

Duration of Participation
The initial interview will last approximately an hour to an hour and a half and an informal follow-up interview will occur one week later. The journal should be kept between the interviews. You may also elect to review the results and provide feedback.

Risks
The risks in participating in this study are minimal, no greater than everyday life. However, there is always a potential risk of a breach of confidentiality. The safeguards to minimize this risk are explained in the "Confidentiality" section below. There is also the potential to discuss sensitive topics. Should you become upset during the interview or over the course of the study, you can contact Counseling and Psychological Services (CAPS) at (765) 494-6995 or the Office of the Dean of Students at (765) 494-1747.

Benefits

The benefits of the study include allowing gamers to directly voice their gaming experiences. There are no other direct benefits for participants. However, your participation will help researchers better understand the experiences of online gamers.

Compensation

Following the interview and after you bring your journal back, you will be compensated for your time with a $25 Amazon.com gift card. Fully participating in the study will guarantee compensation.

Confidentiality

All information received will be kept strictly confidential and only members of the research team will have access to the data. To minimize the risk of a breach to confidentiality, research materials will be stored in a locked file cabinet in Beering Hall. Interviews will be audio recorded and transcribed. However, all of your responses will be de-identified and will not be linked back to you. Each interviewee will be assigned a code to separate responses from any identifiable information. This code will also be used to link survey responses to interview and journal data. Two additional graduate student researchers will serve as coders during data analysis. Their participation in the study is limited to data analysis and they will not have access to any identifiable information. The data will only be used for the purpose of this study. All identifying data will be destroyed at the conclusion of the study except for the informed consent forms and code key. These research records will be securely stored in a locked file cabinet for seven years and then destroyed. De-identified materials (e.g., transcripts) will be kept indefinitely. All findings from the study will be reported in aggregate form and no identifiable information will be used. The project's research records may be reviewed by departments at Purdue University responsible for regulatory and research oversight.

Voluntary Nature of Participation

Your participation in completing the interview and journal is completely voluntary. You may refuse to participate at any time without penalty. You may withdrawal your data at any time until the point your data is de-identified and reported in aggregate form. If you wish to withdraw your participation from the study, please contact the researchers at the email addresses listed below.

Contact Information

If you have any questions or concerns about the project, you may contact Joseph Waters at waters2@purdue.edu or Dr. Ayse Ciftci at ayse@purdue.edu. If you have concerns about your rights as a research participant, you can contact the Institutional Review Board at Purdue University, 155 S. Grant Street, Ernest C. Young Hall, 10th floor - room 1032, West Lafayette, IN 47907-2114. They may also be reached at (765) 494-5942 or irb@purdue.edu.

Informed Consent

If you agree to participate, please respond to this email within one week and state "I consent to participate in the study." I will then contact you to schedule our initial interview during which you will be asked to sign a copy of this consent form.

Sincerely,

Joseph Waters, M.A.
Counseling Psychology Doctoral Candidate
Purdue University
Department of Educational Studies
100 N. University St.
West Lafayette, IN 47907
waters2@purdue.edu

Appendix D

Informed Consent for Screening

Exploring problematic online gaming: A qualitative approach

Ayse Ciftci, Ph.D.
Joseph Waters, M.A.
Purdue University
Department of Educational Studies

Thank you for considering participating in my study. I am conducting my dissertation on the day-to-day experiences of online gamers who primarily play massively multiplayer online role-playing games (MMORPGs).

Purpose of Research

The purpose of this study is to better understand the experiences of online gamers who regularly play massively multiplayer online role-playing games. This survey is to screen for participants who (a) are current undergraduate or graduate students; (b) are 18 to 29 years of age; and (c) regularly play a MMORPG.

Specific Procedures

If you agree to partake in this survey, you will be asked to answer 20 brief questions including the name of the MMORPG you play and basic demographic information. After completing this survey, you may be contacted and asked to participate in an individual interview and to complete a very brief journal that is provided to you. Only 10 participants will be selected to participate in the interview. An additional informed consent will be presented at that time.

Duration of Participation

The survey should take less than five minutes to complete.

Risks

The risks in participating in this survey are minimal, no greater than everyday life. However, there is always a potential risk of a breach of confidentiality. The safeguards to minimize this risk are explained in the "Confidentiality" section below. Should you become upset at any time during the survey, you can contact Counseling and Psychological Services (CAPS) at (765) 494-6995 or the Office of the Dean of Students at (765) 494-1747.

Benefits

There are no benefits from participating in this survey.

Compensation

Each participant chosen to participate in the interview portion of the study will be compensated with a $25 Amazon.com gift card. There is no compensation for participating in the screening survey.

Confidentiality

All information received will be kept strictly confidential and only members of the research team will have access to the data. The information from this survey will be used to screen and contact eligible participants. Participants who meet the criteria to be interviewed will have their data placed in a separate file. Participants will be randomly selected from this file and contacted about the interview. This data file will be securely stored on a flash drive and locked in a file cabinet when not in use. Participants who do not meet the criteria to participate will have any identifiable information deleted from their data. For participants who are interviewed, the interviews will be audio recorded and transcribed. All identifiable information will be removed from the transcripts and each interviewee will be assigned a code to separate responses from any identifiable information. This code will also be used to link survey responses to interview and journal data. To minimize the risk of a breach to confidentiality, research materials will be stored in a locked file cabinet in Beering Hall. All identifiable data (e.g., contact information, audio recordings) will be destroyed at the conclusion of the study except for informed consent forms and the key code, which will be destroyed after seven years. De-identified data will be maintained indefinitely. Data collected during this study will be used for the sole purpose of this study. The project's research records may be reviewed by departments at Purdue University responsible for regulatory and research oversight.

Voluntary Nature of Participation

Your participation in this study is completely voluntary. You may decline to answer any question you feel uncomfortable in answering. You may refuse to participate at any time without penalty, and you may withdrawal your data at any time until the point your data is de-identified and reported in aggregate form. If you wish to withdraw your participation from the study, please contact the researchers at the email addresses listed below.

Contact Information

If you have any questions or concerns about the project, you may contact Joseph Waters at waters2@purdue.edu or Dr. Ayse Ciftci at ayse@purdue.edu. If you have concerns about your rights as a research participant, you can contact the Institutional Review Board at Purdue University, 155 S. Grant Street, Ernest C. Young Hall, 10th floor - room 1032, West Lafayette, IN 47907-2114. They may also be reached at (765) 494-5942 or irb@purdue.edu.

Informed Consent

By clicking the button to continue to the survey, I acknowledge that I have read and understood the information on this page, and that I am prepared to participate in the survey.

If you agree to participate, please click on the button below to begin.

Appendix E

Screening Survey

Please answer the following questions as honestly as possible. This survey will be used to determine your eligibility to participate in the study. Your participation is completely voluntary and you are free to skip questions or stop participating at any time.

Please specify which massively multiplayer online role-playing game (MMORPG; e.g., World of Warcraft, Rift, Eve Online) you primarily play:
_____

Please estimate how many hours, on average, you spend engaged in game-related activities each week: _____

How many hours, on average, do you plan to game each week? _____

GAS

Response options: (1) *never*, (2) *rarely*, (3) *sometimes*, (4) *often*, (5) *very often*.

Please use the scale below to indicate how often the items apply to you.

How often during the last six months:

1. Did you think about playing a game all day long?	1	2	3	4	5
2. Did you spend increasing amounts of time on games?	1	2	3	4	5
3. Did you play games to forget about real life?	1	2	3	4	5
4. Have others unsuccessfully tried to reduce your game use?	1	2	3	4	5
5. Have you felt bad when you were unable to play?	1	2	3	4	5
6. Did you have fights with others (e.g., family, friends) over your time spent on games?	1	2	3	4	5
7. Have you neglected other important activities (e.g., school, work, sports) to play games?	1	2	3	4	5

If you are selected to participate in this study, can the investigators contact you via:

Email: Yes, please provide email address: _____
No

Phone: Yes, please provide phone number: _____
No

What is your name (first name only)? _____

Appendix F

Interview/Journal Informed Consent

Exploring problematic online gaming: A qualitative approach

Ayse Ciftci, Ph.D.
Joseph Waters, M.A.
Purdue University
Department of Educational Studies

Purpose of Research

The purpose of this study is to better understand the experiences of online gamers who regularly play massively multiplayer online role-playing games.

Specific Procedures

If you agree to participate in this study, we will schedule an interview and meet in Beering Hall. You will be asked to sign this informed consent form prior to the interview. You will then be interviewed for approximately an hour to an hour and a half. The interview will be audio recorded. Following the interview, you will be asked to keep a simple journal that is provided to you for one week on amount of play time; reasons for playing; feelings prior to, during, and after playing; consequences of playing; and any other information you may want to provide. One week after the interview, you will be contacted via telephone or email for an informal follow-up interview. This interview will be unstructured and is only meant to provide you with an opportunity to add any additional information or make revisions to previous statements. Therefore, the follow-up interview will not be audio or video recorded.

Duration of Participation

The initial interview will last approximately an hour to an hour and a half and an informal follow-up interview will occur one week later. The journal should be kept between the interviews. You may also elect to review the results and provide feedback.

Risks

The risks in participating in this study are minimal, no greater than everyday life. However, there is always a potential risk of a breach of confidentiality. The safeguards to minimize this risk are explained in the "Confidentiality" section below. There is also the potential to discuss sensitive topics. Should you become upset during the interview or over the course of the study, you can contact Counseling and Psychological Services (CAPS) at (765) 494-6995 or the Office of the Dean of Students at (765) 494-1747.

Benefits

The benefits of the study include allowing gamers to directly voice their gaming experiences. There are no other direct benefits for participants. However, your participation will help researchers better understand the experiences of online gamers.

Compensation

Following the interview and after you bring your journal back, you will be compensated for your time with a $25 Amazon.com gift card. Fully participating in the study will guarantee compensation.

Confidentiality

All information received will be kept strictly confidential and only members of the research team will have access to the data. To minimize the risk of a breach to confidentiality, research materials will be stored in a locked file cabinet in Beering Hall. Interviews will be audio recorded and transcribed. However, all of your responses will be de-identified and will not be linked back to you. Each interviewee will be assigned a code to separate responses from any identifiable information. This code will also be used to link survey responses to interview and journal data. Two additional graduate student researchers will serve as coders during data analysis. Their participation in the study is limited to data analysis and they will not have access to any identifiable information. The data will only be used for the purpose of this study. All identifying data will be destroyed at the conclusion of the study except for the informed consent forms and code key. These research records will be securely stored in a locked file cabinet for seven years and then destroyed. De-identified materials (e.g., transcripts) will be kept indefinitely. All findings from the study will be reported in aggregate form and no identifiable information will be used. The project's research records may be reviewed by departments at Purdue University responsible for regulatory and research oversight.

Voluntary Nature of Participation

Your participation in completing the interview and journal is completely voluntary. You may decline to answer any question you feel uncomfortable in answering. You may refuse to participate at any time without penalty, and you may withdrawal your data at any time until the point your data is de-identified and reported in aggregate form. If you wish to withdraw your participation from the study, please contact the researchers at the email addresses listed below.

Contact Information

If you have any questions or concerns about the project, you may contact Joseph Waters at waters2@purdue.edu or Dr. Ayse Ciftci at ayse@purdue.edu. If you have concerns about your rights as a research participant, you can contact the Institutional Review Board at Purdue University, 155 S. Grant Street, Ernest C. Young Hall, 10th floor - room 1032, West Lafayette, IN 47907-2114. They may also be reached at (765) 494-5942 or irb@purdue.edu.

Informed Consent

I have had the opportunity to read this consent form and have the research study explained. I have had the opportunity to ask questions about the research study, and my questions have been answered. I am prepared to participate in the research study described above. I will be offered a copy of this consent form after I sign it.

_____

Name of Participant

_____ _____

Signature of Participant Date

_____ _____

Signature of Researcher Date

Appendix G

Interview/Journal Informed Consent for Skype Interviews

Exploring problematic online gaming: A qualitative approach

Ayse Ciftci, Ph.D.
Joseph Waters, M.A.
Purdue University
Department of Educational Studies

Purpose of Research

The purpose of this study is to better understand the experiences of online gamers who regularly play massively multiplayer online role-playing games.

Specific Procedures

If you agree to participate in this study, we will schedule an interview via Skype. This informed consent form will be covered with you prior to the interview beginning, and you will be asked to provide verbal assent that you understand the informed consent and agree to proceed with the interview. You will then be interviewed for approximately an hour to an hour and a half. During our interview, please try to ensure that you will be alone for up to 90 minutes. The interview will be audio recorded. Following the interview, you will be asked to keep a simple journal that is provided to you for one week on amount of play time; reasons for playing; feelings prior to, during, and after playing; consequences of playing; and any other information you may want to provide. One week after the interview, you will be contacted via telephone or email for an informal follow-up interview. This interview will be unstructured and is only meant to provide you with an opportunity to add any additional information or make revisions to previous statements. Therefore, the follow-up interview will not be audio or video recorded.

Duration of Participation

The initial interview will last approximately an hour to an hour and a half and an informal follow-up interview will occur one week later. The journal should be kept between the interviews. You may also elect to review the results and provide feedback.

Risks

The risks in participating in this study are minimal, no greater than everyday life. However, there is always a potential risk of a breach of confidentiality. The safeguards to minimize this risk are explained in the "Confidentiality" section below. There is also the potential to discuss sensitive topics. Should you become upset during the interview or over the course of the study, you can contact Counseling and Psychological Services (CAPS) at (765) 494-6995 or the Office of the Dean of Students at (765) 494-1747.

Benefits

The benefits of the study include allowing gamers to directly voice their gaming experiences. There are no other direct benefits for participants. However, your participation will help researchers better understand the experiences of online gamers.

Compensation

Following the interview and after you return your journal, you will be compensated for your time with a $25 Amazon.com gift card. Fully participating in the study will guarantee compensation.

Confidentiality

All information received will be kept strictly confidential and only members of the research team will have access to the data. To minimize the risk of a breach to confidentiality, research materials will be stored in a locked file cabinet in Beering Hall. Interviews will be audio recorded and transcribed. However, all of your responses will be de-identified and will not be linked back to you. Each interviewee will be assigned a code to separate responses from any identifiable information. This code will also be used to link survey responses to interview and journal data. Two additional graduate student researchers will serve as coders during data analysis. Their participation in the study is limited to data analysis and they will not have access to any identifiable information. The data will only be used for the purpose of this study. All identifying data will be destroyed at the conclusion of the study except for the informed consent forms and code key. These research records will be securely stored in a locked file cabinet for seven years and then destroyed. De-identified materials (e.g., transcripts) will be kept indefinitely. All findings from the study will be reported in aggregate form and no identifiable information will be used. The project's research records may be reviewed by departments at Purdue University responsible for regulatory and research oversight.

Voluntary Nature of Participation

Your participation in completing the interview and journal is completely voluntary. You may decline to answer any question you feel uncomfortable in answering. You may refuse to participate at any time without penalty, and you may withdrawal your data at any time until the point your data is de-identified and reported in aggregate form. If you wish to withdraw your participation from the study, please contact the researchers at the email addresses listed below.

Contact Information

If you have any questions or concerns about the project, you may contact Joseph Waters at waters2@purdue.edu or Dr. Ayse Ciftci at ayse@purdue.edu. If you have concerns about your rights as a research participant, you can contact the Institutional Review Board at Purdue University, 155 S. Grant Street, Ernest C. Young Hall, 10th floor - room 1032, West Lafayette, IN 47907-2114. They may also be reached at (765) 494-5942 or irb@purdue.edu.

Informed Consent

I have been sent a copy of this consent form via email. I have had the opportunity to read this consent form and have the research study explained. I have had the opportunity to ask questions about the research study, and my questions have been answered. I am prepared to participate in the research study described above.

Appendix H

Demographic Questionnaire

Age: _____

Sex: Female Male

Relationship Status:

1. Single
2. Partnered
3. Married
4. Separated
5. Divorced
6. Widowed

Sexual Orientation:

1. Heterosexual
2. Gay
3. Lesbian
4. Bisexual
5. Transgender
6. Queer
7. Questioning
8. Other

Year in College:

1. First Year
2. Second Year
3. Third Year
4. Fourth Year
5. Fifth Year or More
6. Graduate Student
7. Professional Student

Race/Ethnicity:

1. Asian/Asian American
2. Hawaiian/Pacific Islander
3. Black/African American
4. White/Caucasian

5. Latino/Latina
6. Native American/Alaskan Native
7. Multi-ethnic/Other, please specify: _____

International Student:

1. Yes, please specify country: _____
2. No

College:

1. Agriculture
2. Education
3. Engineering
4. Health and Human Sciences
5. Liberal Arts
6. Management
7. Pharmacy
8. Science
9. Technology
10. Veterinary Medicine
11. Other, please specify: _____

Do you play a MMORPG with real life friend(s)?

1. Yes
2. No, but I have in the past
3. No

Appendix I

Interview Protocol

In our interview, I will be asking questions about your gaming experiences. I am not starting this interview with expectations of what your answers will be. I am interested in hearing specifically about your experiences, and I would like to ask you questions to help me better understand your experiences. Your answers may overlap with multiple questions and that is okay. You may also decline to answer any question you feel uncomfortable in answering. Please respond as honestly as possible.

Main questions: **What is problematic gaming? What are the common experiences of problematic online gamers?**

1. What does it mean to you to be a gamer?
2. How did you become involved in online gaming?
3. Why MMORPGs?
    a. What motivates you to play MMORPGs?
    b. What do you like about MMORPGs?
4. Tell me about your gaming activity within the MMORPG. What kinds of things do you do?
    a. Have your experiences and/or activities within online games changed over time?
5. Outside of playing the game, tell me about your gaming activities or thoughts
6. Who do you usually game with?
    a. What about real-life friends and guild members?
7. Describe your gaming environment at home.
    a. How do you organize or structure your day?
8. Can you talk about your character creation process? How many? What gender?
    a. What were your reasons for creating a character of this gender?
9. How would you describe yourself personality-wise? How do others in your life describe you?
10. What positive effects does online gaming have on your life?
11. What negative consequences does online gaming have on your life?
    a. What have you given up to play online games?
    b. What kind of pressure do others put on you to play? Are there consequences to not playing long enough or well enough?
12. What is your experience with time loss while gaming?
    a. Do you feel disconnected from life or your surroundings while experiencing time loss?
13. What kinds of activities provide you with a sense of accomplishment outside of gaming?
    a. How do those accomplishments compare to in-game accomplishments?
14. What would you change about your social life?

    a. How much time do you spend alone?
    b. Has online gaming ever replaced your physical social life? Replaced Friends? Supplemented?
15. Have you ever gotten angry about anything game-related? What did you do about your anger?
16. Describe an occasion where your participation in gaming has hurt someone.
17. What function does online gaming play in your life?
18. What is problematic gaming? Do you believe you game problematically?
    a. From your perspective, why do you believe the term addiction is used positively when describing games?
19. Have you ever sought counseling for mental health issues or believe you experience mental health issues?
    a. What substances (e.g., alcohol) do you use? How often?
20. What were your reasons for participating in the study?
21. What effects has the interview had on you?

Appendix J

Journal

Day 1 (First day following the interview)			
Play time (please specify am or pm)	0:00 am to 0:00 pm	0:00 am to 0:00 pm	0:00 am to 0:00 pm
	0:00 am to 0:00 pm	0:00 am to 0:00 pm	0:00 am to 0:00 pm
Reasons for playing	Enter your reaons here		
One word that best describes the way you feel:	Prior to playing: Enter your feelings here		
	During play: Enter your feelings here		
	After playing: Enter your feelings here		
Consequences	Enter any consequences here		
Any other information (e.g., relevant life events or stressors)	Enter optional information here		

Day 2			
Play time (please specify am or pm)	0:00 am to 0:00 pm	0:00 am to 0:00 pm	0:00 am to 0:00 pm
	0:00 am to 0:00 pm	0:00 am to 0:00 pm	0:00 am to 0:00 pm
Reasons for playing	Enter your reaons here		
One word that best describes the way you feel:	Prior to playing: Enter your feelings here		
	During play: Enter your feelings here		
	After playing: Enter your feelings here		
Consequences	Enter any consequences here		

Any other information (e.g., relevant life events or stressors)	Enter optional information here

Day 3			
Play time (please specify am or pm)	0:00 am to 0:00 pm	0:00 am to 0:00 pm	0:00 am to 0:00 pm
	0:00 am to 0:00 pm	0:00 am to 0:00 pm	0:00 am to 0:00 pm
Reasons for playing	Enter your reaons here		
One word that best describes the way you feel:	Prior to playing: Enter your feelings here		
	During play: Enter your feelings here		
	After playing: Enter your feelings here		
Consequences	Enter any consequences here		
Any other information (e.g., relevant life events or stressors)	Enter optional information here		

Day 4			
Play time (please specify am or pm)	0:00 am to 0:00 pm	0:00 am to 0:00 pm	0:00 am to 0:00 pm
	0:00 am to 0:00 pm	0:00 am to 0:00 pm	0:00 am to 0:00 pm
Reasons for playing	Enter your reaons here		
One word that best describes the way you feel:	Prior to playing: Enter your feelings here		
	During play: Enter your feelings here		
	After playing: Enter your feelings here		
Consequences	Enter any consequences here		

Any other information (e.g., relevant life events or stressors)	Enter optional information here

Day 5			
Play time (please specify am or pm)	0:00 am to 0:00 pm	0:00 am to 0:00 pm	0:00 am to 0:00 pm
	0:00 am to 0:00 pm	0:00 am to 0:00 pm	0:00 am to 0:00 pm
Reasons for playing	Enter your reaons here		
One word that best describes the way you feel:	Prior to playing: Enter your feelings here		
	During play: Enter your feelings here		
	After playing: Enter your feelings here		
Consequences	Enter any consequences here		
Any other information (e.g., relevant life events or stressors)	Enter optional information here		

Day 6			
Play time (please specify am or pm)	0:00 am to 0:00 pm	0:00 am to 0:00 pm	0:00 am to 0:00 pm
	0:00 am to 0:00 pm	0:00 am to 0:00 pm	0:00 am to 0:00 pm
Reasons for playing	Enter your reaons here		
One word that best describes the way you feel:	Prior to playing: Enter your feelings here		
	During play: Enter your feelings here		
	After playing: Enter your feelings here		
Consequences	Enter any consequences here		

Any other information (e.g., relevant life events or stressors)	Enter optional information here

Day 7			
Play time (please specify am or pm)	0:00 am to 0:00 pm	0:00 am to 0:00 pm	0:00 am to 0:00 pm
	0:00 am to 0:00 pm	0:00 am to 0:00 pm	0:00 am to 0:00 pm
Reasons for playing	Enter your reaons here		
One word that best describes the way you feel:	Prior to playing: Enter your feelings here		
	During play: Enter your feelings here		
	After playing: Enter your feelings here		
Consequences	Enter any consequences here		
Any other information (e.g., relevant life events or stressors)	Enter optional information here		

Appendix K

Debriefing Letter

Thank you for participating in the study. You have provided valuable data regarding the experiences of gamers who may play at problematic levels. There has been very little qualitative data regarding problematic online gaming. Instead, much of what is understood about problematic online gaming has come from making comparisons to addiction-related phenomena. Your participation in this study has provided an additional perspective to problematic online gaming.

If you have any further questions or comments, please feel free to contact me at waters2@purdue.edu. Thank you again for your help!

VITA

VITA

Joseph M. Waters

Education

August 2010 – present, expected graduation date August 2016
Ph.D., Counseling Psychology, APA Accredited
Purdue University, West Lafayette, IN
Department of Educational Studies, Advisor: Dr. Ayse Ciftci

August 2007 – May 2010
M.A., Clinical Psychology
Ball State University, Muncie, IN

August 2000 - May 2005
Bachelor of Science, Psychology and Business Administration
Ball State University, Muncie, IN
Magna Cum Laude

Clinical Experience

Psychology Intern
Department of Veterans Affairs
Cincinnati VA Medical Center – Cincinnati, OH
July 2014 – July 2015

- Co-led Seeking Safety groups for Veterans with SUD and PTSD
- Assessed Veterans for the SA/PTSD program
- Utilized Motivational Interviewing for patients detoxing
- Conducted Cognitive Processing Therapy with three Veterans weekly
- Conducted assessment and therapy with three long-term outpatients
- Assessed service needs for pain clinic referrals
- Utilized Acceptance and Commitment Therapy for treatment of chronic pain
- Provided chronic pain education
- Co-led ACT groups for chronic pain patients

- Developed treatment plans in collaboration with patients

Counselor (Advanced Doctoral Practicum)
Department of Veterans Affairs
VA Illiana Health Care System – West Lafayette, Indiana
August 2012 – May 2013

- Managed a case load of approximately 15 clients
- Conducted intake interviews, individual therapy, and family systems therapy
- Wrote treatment plans and case conceptualizations
- Provided groups for anger management and PTSD
- Learned principles of Cognitive Processing Therapy for treating trauma

Counselor (Advanced Doctoral Practicum)
Department of Veterans Affairs
VA Illiana Health Care System - Danville, Illinois
August 2011 – May 2012

- Learned and utilized REBT to work with veterans in the substance abuse rehabilitation program
- Provided psychoeducational groups to veterans over communication skills, anger, depression, REBT principles, and how to maintain sobriety after treatment
- Provided individual and couples counseling to a small caseload of veterans
- Conducted intake interviews

Counselor (Doctoral Practicum)
Purdue Counseling and Guidance Center
Purdue University – West Lafayette, IN
August 2010 – May 2011

- Provided individual counseling for university students and members of the general community
- Presented case conceptualizations over clients
- Administered, scored, and interpreted an assessment battery
- Conducted intake interviews

Counselor (Master's Internship)
Ball State University Counseling Center
Ball State University – Muncie, IN
August 2008 – May 2009

- Provided individual counseling for a diverse population including LGBTQ and ethnic minority clients presenting with issues such as depression, anxiety, identity confusion, relationship difficulties, and career/major concerns
- Conducted substance abuse assessments for mandated students and collaborated on treatment recommendations
- Co-developed and provided process addictions training to other interns

- Presented substance abuse outreaches to Greek life and various residence halls as well as outreaches including eating disorders awareness, career development, and substance abuse screenings
- Organized, process observed, and co-led an interpersonal growth group
- Conducted weekly intake interviews
- Used CBT, interpersonal, and crisis management strategies with clients

Child Care Specialist
Youth Opportunity Center, Muncie, IN
February 2006 - October 2006
Randolph Youth Center – Winchester, IN
July 2004 - February 2006

- Used various intervention strategies to manage crisis, teach new coping skills, and model appropriate behaviors
- Received and employed job training in therapeutic crisis intervention, CPR and first aid, and suicide assessment
- Provided one-on-one meetings for residents with concerns
- Conducted restraints and seclusions on residents creating an unsafe environment

Assessment Training and Experience

Psychological Assessment Consultant
Purdue Psychology Treatment and Research Clinics
Purdue University – West Lafayette, IN
August 2013 – December 2013

- Administered, scored, and interpreted comprehensive assessment batteries for Purdue students and members of the community for learning disabilities, ADHD, and pervasive developmental disorders
- Integrated intellectual, personality, and academic achievement test results into formal reports for disability accommodations
- Provided feedback to address referral questions

Career Assessment Consultant
Purdue Counseling and Guidance Center
Purdue University – West Lafayette, IN
August 2013 – December 2013

- Administered, scored, and interpreted comprehensive career assessment batteries including the Strong Interest Inventory, Skills Confidence Inventory, Career Thoughts Inventory, Myers-Briggs Type Indicator, and Career Value Card Sort
- Integrated the assessment findings with the initial interview in formal reports
- Provided feedback to high school students and their families

Therapeutic Assessment Consultant
Purdue Counseling and Guidance Center

Purdue University – West Lafayette, IN
January 2012 – May 2012

- Learned Finn's collaborative model of therapeutic assessment
- Assisted students on academic probation in developing assessment questions
- Administered and interpreted the MMPI-2 and Strong Interest Inventory
- Wrote integrative reports to tailor assessment results to assessment questions
- Provided feedback to address referral questions

Assessment Training
Intelligence and Achievement Assessment

- Wechsler Intelligence Scale for Children-Fourth Edition (WISC-IV), Wechsler Adult Intelligence Scale-Third Edition (WAIS-III), Wechsler Adult Intelligence Scale-Fourth Edition (WAIS-IV), Woodcock Johnson III Tests of Achievement (WJ III ACH), Brown Attention-Deficit Disorder Scales (BrownADDScales), Conners' Adult ADHD Diagnostic Interview for DSM-IV (CAADID), Behavior Rating Inventory of Executive Function (BRIEF), California Verbal Learning Test – Second Edition (CVLT-II), Peabody Picture Vocabulary Test-Third Edition (PPVT-III), and Wide Range Achievement Test-Revision 3 (WRAT-3)

Personality Assessment

- Minnesota Multiphasic Personality Inventory-2 (MMPI-2), Personality Assessment Inventory (PAI), and the Millon Multiaxial Clinical Inventory–III (MCMI-III)

Career Assessment

- Strong Interest Inventory (SII), Skills Confidence Inventory (SCI), Campbell Interest and Skills Survey (CISS), Myers-Briggs Type Indicator (MBTI), Career Thoughts Inventory (CTI), and Career Value Card Sort (CVCS)

Clinical and Malingering Assessments

- Clinical Assessment Interviews, Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV), Beck Depression Inventory-II (BDI-II), Beck Anxiety Inventory (BAI), State-Trait Anxiety Inventory (STAI), Outcome Questionnaire 45.2 (OQ-45.2), and Multigroup Ethnic Identity Measure (MEIM)
- Test of Memory Malingering (TOMM) and the Validity Indicator Profile (VIP)

Supervision Experience

Shift Supervisor (Lead Utility)
Youth Opportunity Center, Muncie, IN
October 2006 - August 2007

- Supervised a residential facility containing 10 cottages
- Intervened with situations involving escalated residents across campus
- Assessed potential residents' eligibility for admission into the facility
- Communicated with law enforcement and parents for residents who ran-away or threatened others
- Ensured proper staff to resident ratios and that proper paperwork was maintained

- Authorized, supervised, and conducted seclusions and restraints

United States Marine Corps Officer Candidate
Marine Corps Base Quantico, Quantico, VA
July 2002 - August 2002

- Participated in various leadership roles based on rank such as Candidate Company First Sergeant, Candidate Platoon Commander, and Fire Team Leader
- Commanded a company of hundreds of candidates
- Commanded a platoon of approximately 50 candidates
- Received directives and micromanaged a small fire team

Manager
McDonalds, Muncie, IN
November 1997 to July 2004

- Provided directives, goals, and training for employees
- Analyzed individual workers' skill sets and organized employees to maximize productivity
- Provided channels for employees to express concerns
- Provided customer service

Teaching Experience

Teaching Assistant
Course: Academic and Career Planning - Purdue University, West Lafayette, IN
August 2010 – December 2010

- Presented classroom lectures to 2 sections of Academic and Career Planning
- Facilitated group administration and interpretation of personality and career inventories
- Collaborated with academic advisors on course design and student progress
- Met with students during office hours
- Graded assignments

Teaching Assistant
Courses: Developmental Psychology, Psychology of Sexual Behavior, and Psychology of Women - Ball State University, Muncie, IN
August 2007 – May 2009

- Occasionally lectured in developmental psychology classes
- Developed assignments, discussion boards, and grading rubrics
- Graded essay exams and discussion assignments
- Developed a website covering APA guidelines using html
- Held office hours and provided individual aid to students including those with learning disabilities

Research Experience

Research Assistant
Purdue University, West Lafayette, IN
June 2011 – May 2014

- Wrote various literature reviews on topics including the effects of student-faculty interactions on student engagement and outcomes; students' use of socialization tactics; student owned technologies; effects of using social media to facilitate learning; use of formative and summative feedback in computer mediated learning; and nonacademic factors of student success
- Conducted interviews with faculty over efficacy of using university created technologies in the classroom
- Transcribed and analyzed qualitative data
- Collaborated on developing research projects and wrote IRB protocols

Research Assistant
Ball State University, Muncie, IN
August 2007 – May 2009

- Investigated the relationship between hemispheric activation and creativity
    - Found that the greater the right hemisphere activation, the higher the scores for the RAT, a measure of creativity
- Investigated relationship between the right hemisphere, metaphor processing, and semantic distance
    - Found that the right hemisphere contributes significantly to the comprehension of indirect meanings
- Investigated the relationship between motor symptom severity in people with Parkinson's disease and cognitive deficits in complicated syntactic categories such as verbs and pronouns
    - Found that greater severity on the left-side was associated with fewer verbs and pronouns used
- Presented results in departmental and APS poster presentations
- Assisted in formulating and conducting various research projects

Undergraduate Research Assistant
Ball State University, Muncie, IN
September 2006 - November 2006

- Collected survey data from groups of participants
- Coded each variable and entered data into SPSS

Independent Research

- Conducted a literature review investigating the potential addictiveness of gaming and compared gaming addiction to other behavioral addictions such as pathological gambling

- Developed a study to Investigate the effects of gaming and gambling on college students
- Currently working on a qualitative dissertation investigating the common experiences of problematic online gamers

Research and Conference Presentations

Broustovetskaia, A., Ciftci, A., Elison, Z., Huang, Y., Kang, J., Lee, S., Reid Marks, L., Nolasco, M., Ryu, L., Shah, C., Shawahin, L., **Waters, J.M.**, & Zalzala, A. (2014, March). *Unification through diversity: Embracing complexities in training*. Roundtable discussion presented at the 2014 Counseling Psychology Conference, Atlanta, GA

Gettings, P.E., **Waters, J.M.**, Selzer King, A., Tanes, Z., & Pistilli, M.D. (2013). *Message testing and self-efficacy in Course Signals: Formative evaluation to identify effective communication strategies*. Paper presented at the Southern States Communication Association Conference, Louisville, KY

Waters, J.M. (2012). *Effects of gaming and gambling on college students' mental health and academic performance*. Unpublished manuscript, Purdue University, West Lafayette, IN

Waters, J.M. (2011). *Effects of gaming and gambling on college students*. Poster presented at Great Lakes Conference 2011, Bloomington, IN and at the 5th Annual Graduate Student Educational Research Symposium, Purdue University

Waters, J.M. (2010). *What do we know about video games? A literature review.* Unpublished manuscript, Ball State University, Muncie, IN

Waters, J.M., Cappaert, K.J., Felton, A.D., & Holtgraves, T.M. (2008). *Differential hemispheric activation and creativity*. Poster presented at the 20th annual Association for Psychological Science Convention, Chicago, IL and at the 16th annual Department of Psychological Science Poster Session, Ball State University

Felton, A.D., **Waters, J.M**., Cappaert, K.J., & Holtgraves, T.M. (2008). *The right hemisphere: A significant role in the comprehension of indirect replies*. Poster presented at the 20th annual Association for Psychological Science Convention, Chicago, IL and at the 16th annual Department of Psychological Science Poster Session, Ball State University

Cappaert, K.J., Holtgraves, T.M., McNamara, P., Felton, A.D., & **Waters, J.M.** (2008). C*ognitive and emotional correlates of asymmetric motor symptom severity in Parkinson's Disease*. Poster presented at the 20th annual Association for Psychological Science Convention, Chicago, IL and at the 16th annual Department of Psychological Science Poster Session, Ball State University

Service and Additional Training

- The Military Family Research Institute at Purdue University (2010); three day Strengthening Transitions Workshop over military culture, the deployment cycle, treating depression, treating suicidal behavior, etiology of PTSD, assessing PTSD, and using Prolonged Exposure Therapy to treat PTSD
- New Student Mentor (2011), Purdue University Counseling Psychology Program, West Lafayette, IN
- Member (2010-present), Purdue University Counseling & Development Student Group, West Lafayette, IN
- Member (2010-2011), Purdue University Multicultural Committee, West Lafayette, IN
- Participated in course designed to teach how to develop a curriculum including lecture materials, syllabi, assignments, and grading rubrics for an undergraduate course (2010)

Affiliations and Honors/Awards

- Student Affiliate, American Psychological Association
- Phi Kappa Phi Honor Society
- Beta Gamma Sigma Honor Society
- Two time recipient of Terhune, Inc. Scholarship
- Recipient of Marsh, Ermal Scholarship
- Recipient of Pell Grant
- Recipient of Indiana Higher Education Award